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CRAIG DISTRICT

(White River and Kremmling Resource Areas)

DRAFT WILDERNESS ENVIRONMENTAL IMPACT STATEMENT

[redacted]

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CRAIG DISTRICT OFFICE
455 Emerson St.
Craig, CO 81625-1129

TAKE PRIDE IN AMERICA

IN REPLY REFER TO

October 6, 1989

Dear Reader,

Enclosed for your review and comment is the Craig District (White River and Kremmling Resource Areas) Draft Wilderness Environmental Impact Statement (EIS). Comments received from the public will be evaluated and considered by the Bureau of Land Management (BLM) when preparing the Craig district final Wilderness Environmental Impact Statement. This Draft Wilderness EIS and the Draft Wilderness Technical Supplement to the Little Snake Resource Management Plan and Environmental Impact Statement (published in February 1986 - the comment period closed May 9, 1986) will be incorporated into one Final Wilderness EIS for the entire Craig District (White River, Kremmling, and Little Snake Resource Areas). The Craig District Final Wilderness EIS will include public comments on both documents, and BLM's responses to those comments.

Public hearings to receive oral and written comments on this Draft Wilderness EIS will be held at **7 p.m.** as follows:

- **Monday, December 4, 1989**, Rodeway Inn Foothills, 11595 West 6th Avenue, (6th Avenue and Simms), Lakewood, Colorado
- **Tuesday, December 5, 1989**, Howard Johnson's, 752 Horizon Drive, Grand Junction, Colorado
- **Wednesday, December 6, 1989**, Bureau of Land Management, Vernal District Office, 170 South 500 East, Vernal, Utah
- **Monday, December 11, 1989**, Bureau of Land Management, White River Resource Area, 2 miles west of Meeker on Colorado Highway 64, Meeker, Colorado
- **Tuesday, December 12, 1989**, Grand County Community Building at the Fairgrounds (Extension Building), Kremmling, Colorado
- **Wednesday, December 13, 1989**, Holiday Inn, 300 Colorado Highway 13 (Highway 40 and 13), Craig, Colorado

Oral comments will only be accepted at these hearings. A time limit may be placed on oral comments depending on the number of people who wish to make a comment. Oral comments should be accompanied by a written synopsis of the presentation. Written and oral comments will receive equal consideration. **All comments must be received by January 12, 1990.** Comments should be sent to:

Wilderness EIS - Project Manager
Bureau of Land Management
Craig District Office
455 Emerson Street
Craig, Colorado 81625

We appreciate your interest in BLM's wilderness process. The Final wilderness EIS, along with wilderness recommendations will be forwarded by BLM through the Secretary of the Interior, to the President, and on to Congress for legislation that would designate the areas as wilderness or release them for uses other than wilderness. Please refer to Chapter 1 for a more complete discussion of this process.

For additional information, contact Greg Goodenow or Dave Cooper at the above address, or telephone them at (303) 824-8261.

Sincerely,

William J. Pulford

William J. Pulford
District Manager

88077267

#20580760

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1989

CRAIG DISTRICT
(White River and Kremmling Resource Areas)
DRAFT
WILDERNESS
ENVIRONMENTAL IMPACT STATEMENT

OCT 1989

[redacted]

Prepared by the
CRAIG DISTRICT OFFICE
BUREAU OF LAND MANAGEMENT
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Neil F. Morck
State Director
Colorado State Office

CRAIG DISTRICT

(White River and Kremmling Resource Areas) Draft Wilderness Environmental Impact Statement Jackson, Moffat, and Rio Blanco Counties, Colorado and Uintah County, Utah

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT
CRAIG DISTRICT OFFICE

Type of Action: Administrative ( ) Legislative (X)

Abstract: This Draft Environmental Impact State analyzes the environmental, social, and economic effects of designation or nondesignation as wilderness for each of 8 WSAs in the White River and Kremmling Resource areas of the Bureau of Land Management's (BLM) Craig District. The WSAs are located in Jackson, Moffat, and Rio Blanco County, Colorado, and Uintah County, Utah. The study areas are Bull Canyon (12,297 acres), Willow Creek (13,368 acres) Skull Creek (13,740 acres), Black Mountain (9,932 acres), Windy Gulch (12,274 acres), Oil Spring Mountain (17,740 acres), Troublesome (8,250 acres) and Platte River Contiguous (30 acres). BLMs proposed action is to recommend the Bull Canyon, Willow Creek, Skull Creek, and Platte River Contiguous WSAs as suitable for wilderness designation. The other WSAs are proposed as nonsuitable for wilderness designation.

Comments have been requested form numerous agencies, organizations, and individuals, including those listed in Chapter 5. Comments must be in writing and must be received no later than January 12, 1990 , at the address given below (oral comments will be accepted only at the public meetings).

For Further Information Contact: Greg Goodenow, Project Manager, Bureau of Land Management, Craig District Office, 455 Emerson Street, Craig, Colorado 81625 or call (303) 824-8261.

SUMMARY

This Draft Environmental Impact Statement (DEIS) analyzes the impacts of designating or not designating each of 8 Wilderness Study Areas (WSAs) in northwest Colorado as wilderness. The WSAs are administered by the U.S. Department of the Interior, Bureau of Land Management (BLM) in Colorado's Craig District, White River and Kremmling Resource areas.

The WSAs analyzed are:

- Bull Canyon	12,297 acres
- Willow Creek	13,368 acres
- Skull Creek	13,740 acres
- Black Mountain	9,932 acres
- Windy Gulch	12,274 acres
- Oil Spring Mountain	17,740 acres
- Troublesome	8,250 acres
- Platte River Contiguous	30 acres

(A general location map of the WSAs is shown on page 1-2 of this document, and a listing of the size, county, location, and affected land use plan is shown on page 1-3.)

The Bull Canyon, Willow Creek, Skull Creek, and Platte River Contiguous WSAs are recommended as suitable for wilderness designation under BLM's proposed action alternatives. The other WSAs are recommended as nonsuitable for wilderness designation.

This Draft EIS replaces and supersedes the Draft Environmental Impact Statement for the White River Resource Area Wilderness Planning Amendment (USDI, BLM, 1983) and the wilderness analysis in the Kremmling Resource Area Resource Management Plan/Environmental Impact Statement (USDI, BLM, 1984). This analysis also serves as a land use plan amendment for the land use plans covering the WSAs.

Congress has the sole authority for designating any federally-administered land as wilderness. Congress will take the recommendations submitted by the President, along with any other information it may have obtained through its own sources, and will pass legislation that would formally designate a WSA as wilderness or release it for uses other than wilderness.

The analysis for the WSAs has been summarized in the following paragraphs. For more complete information, please refer to the analysis itself in Chapter 4 - Environmental Consequences, or the summary table for the appropriate WSA in Chapter 2 - Description of the Alternatives and Summary of the Impacts.

Bull Canyon WSA

This 12,297 acre WSA is located about 4 miles north of Dinosaur, Colorado, in Moffat County and in Uintah County, Utah, adjacent to the Willow Creek WSA. Bull Canyon is characteristic of the arid canyon ecosystems of northwest Colorado. Pinyon/juniper, sagebrush, and native grasses are the main vegetation communities. Riparian vegetation including boxelder, cottonwood, and willows, are found along various stream beds in the WSA. Geographically, the area is cut by deep ridges and gullies of sandstone eroded by rain and snowmelt waters. Interesting geology with colorful cliffs, canyons, and unique rock formations are a result of deep erosion.

- Boundary Adjustment Alternative (Proposed Action). Wilderness values would be protected on 12,290 acres. Recreation use would increase from 700 visitor days per year (present) to 850 visitor days per year. Operating costs for livestock operations within the WSA would increase slightly without the use of motorized vehicles, but grazing would remain at current levels of 826 animal unit months (AUMs - this is a measure of forage production). The 320 acre private inholding would be acquired, and the area would be closed to any mineral development. Water quality along with wildlife habitat and populations would remain unchanged.

- All Wilderness Alternative. The impacts are the same as the Boundary Adjustment Alternative, with the exception that wilderness values would be protected on 12,297 acres.

- No Wilderness Alternative (No Action). Wilderness characteristics of solitude and naturalness would be lost from a minimum of two-thirds of the WSA through cumulative affect of projected activities. Recreation use of about 700 visitor days annually would remain unchanged. Primitive recreation use would be degraded by the development of other resources, although the setting would remain predominantly natural. Livestock forage would increase by about 18 percent or 150 AUMs. Operating costs associated with motor vehicle use would remain unchanged, because motor vehicle use would be allowed. Sediment yield would increase in the short term and decrease in the long term. These changes in water quality would be well within natural variations. Deer and elk use of the area would increase slightly due to increased forage production from range improvement projects. Oil and gas development would be allowed. While some oil and gas exploration may occur, no development of production is anticipated. No impact, change in ownership or use of the 320 acre private inholding is anticipated.

Willow Creek WSA

This 13,368 acre WSA is located about 7 miles northeast of Dinosaur in Moffat County, Colorado, adjacent to the Bull Canyon Skull Creek WSAs. The Willow Creek WSA is characteristic of the arid canyon ecosystems of northwest Colorado. Pinyon, juniper, sagebrush, and native grasses are the main vegetative communities with riparian vegetation, including boxelder, cottonwood, and willows, found in various drainages in the WSA. Geographically, the area is cut by deep ridges, gullies, and canyons of sandstone eroded by rain and snowmelt waters. A 1,000 foot cliff dominates the north end of the unit. The rugged dissected topography within the unit is mostly covered with pinyon-juniper except for a natural burn area on the western end of the unit.

- All Wilderness Alternative (Proposed Action). Wilderness values would be protected on 13,368 acres. Recreation use would increase from 700 visitor days per year (present) to 850 visitor days per year. Operating costs for livestock operations within the WSA would increase slightly due to restrictions on the use of motorized vehicles, but grazing would remain at current levels of 812 AUMs. The area would be closed to any mineral entry or development. Acquisition of some adjoining state land and 94 acres of private mineral estate would be pursued. Current land use would continue. Water quality along with wildlife habitat and populations would remain unchanged.

- No Wilderness Alternative (No Action). Wilderness values of solitude and naturalness would be lost on about one-third of the WSA due to the cumulative effects of projected activities. Total recreation use is not expected to change, although off-road vehicle use associated with hunting is expected to increase to about 75 visitor days per year. Oil and gas development would be allowed. However, some oil and gas exploration may occur, no development or production is anticipated. Ranching operations, water quality, wildlife populations and habitat, along with state and private lands would remain unchanged.

Skull Creek WSA

This 13,740 acre WSA is located about 7 miles northeast of Dinosaur in Moffat County, Colorado, adjacent to the Willow Creek WSA. The Skull Creek WSA, like Bull Canyon and Willow Creek WSAs, is characteristic of the arid canyon ecosystems of northwest Colorado. Geographically, the area is covered by a series of ridges, gullies, and canyons of sandstone eroded by rain and snowmelt waters. The majority of the area is covered by dense pinyon-juniper woodlands interspersed with openings of sagebrush and native grasses.

- All Wilderness Alternative (Proposed Action). Wilderness values would be protected on 13,740 acres. Recreation use would increase from 700 visitor days per year (present) to 850 visitor days per year. Operating costs for livestock operations within the WSA would increase slightly due to restrictions on the use of motorized vehicles, but grazing would remain at current levels of 527 AUMs. The WSA would be closed to any mineral entry or development. Acquisition of some adjoining state land and 186 acres of private mineral estate would be pursued. Current land use would continue. Water quality along with wildlife habitat and populations would remain unchanged.

- No Wilderness Alternative (No Action). Wilderness values of naturalness and solitude would be lost on the eastern half of the WSA due to range improvement projects. Total recreational use is not expected to change, although off-road vehicle use associated with hunting is expected to increase by about 75 visitor days per year. Livestock forage and use would increase from 527 AUMs (present) to 656 AUMs. There would be an increase of up to 28 percent in sediments and salts from the WSA for about 3 years, followed by a long-term decrease of about 4 percent. These changes in water quality would have an immeasurably small effect on the White River. Deer and elk use of the WSA would increase slightly due to increased forage from range improvements. Oil and gas development would be allowed, however, no oil and gas exploration development, or production is anticipated. No change in ownership or use of the state or private lands is anticipated.

Willow Creek/Skull Creek WSAs - Joint Alternatives

- Conflict Resolution Alternative. This alternative would recommend and combine the central portions of these two WSAs, and drop the eastern and western fingers from consideration as wilderness. Wilderness values would be protected on 19,698 acres and lost on 7,410 acres. Recreation use would increase from 1,400 visitor days per year (present) to 1,700 visitor days per year. Livestock production in the wilderness would remain at current levels. Operating costs on grazing allotments within the wilderness area would be slightly higher due to the restrictions on vehicle use, but grazing within the wilderness would continue at current levels. Forage and AUMs within the two portions dropped from wilderness consideration would increase resulting in an increase for the areas as a whole from 1,339 AUMs (present) to 1,463 AUMs. Any changes in water quality would be well within natural variations. Deer and elk use of the area would increase slightly outside the wilderness due to increased forage production from range improvement projects. The wilderness would be closed to any mineral development. The areas dropped from wilderness consideration would be open to mineral exploration, development, and production, although none is anticipated. Acquisition of adjoining state lands and 280 acres of private mineral estate would be pursued, but current uses of the land would continue.

- Combined All Wilderness Alternative. This alternative would combine the Willow Creek and Skull Creek WSAs to form one wilderness area of 27,108 acres. Recreation visitor would increase from 1,400 (present) to 1,700 visitor days per year. Livestock forage and use would remain at 1,339 AUMs. The area would be closed to any mineral entry or development. Acquisition of adjoining state lands and 280 acres of private mineral estate would be pursued, but current uses of these lands would continue. There would be no change in water quality or wildlife habitat and populations.

Black Mountain WSA

This 9,932 acre WSA is located about 11 miles west of Meeker in Rio Blanco County, Colorado, adjacent to the Windy Gulch WSA. Black Mountain is characterized by a series of mesas cut by several gulches and side drainages. Pinyon, juniper, sagebrush, and native grasses area the main vegetation communities.

- No Wilderness Alternative (Proposed Action and No Action). The wilderness values of solitude and naturalness would be lost over most of the 9,932 acre WSA due to range improvement projects. Livestock forage production would increase from 635 to 731 AUMs. Total recreational use would increase from 450 visitor days per year (present) to abut 475 visitor days per year due to an increase in motorized recreational use. Any changes in water quality would be well within natural variations. Deer use of the area would increase slightly. Elk use would remain unchanged. No mineral development is anticipated, although it would be allowed (no producible minerals are known to exist). No state or private lands would be affected.

- All Wilderness Alternative. Wilderness values would be protected on all 9,932 acres of the area. Livestock forage production would remain at present levels of 635 AUMs, but operating costs for livestock operations would increase slightly due to the restrictions on the use of motorized vehicles. Recreational use would remain at about 450 visitor days per year. Any mineral development would be precluded, although no producible mineral resources are known to exist. No state or private lands would be affected.

Windy Gulch WSA

This 12,274 acre WSA is located about 10 miles northwest of Meeker in Rio Blanco County, Colorado, adjacent to the Black Mountain WSA. Windy Gulch is characterized by a series of mesas cut by several gulches and side drainages. Pinyon-juniper, sagebrush, and native grasses are the main vegetation communities.

- No Wilderness Alternative (Proposed Action and No Action). The wilderness values of naturalness and solitude would be lost over most of the 12,274 acre area due to range improvement projects. Livestock forage production would increase from 879 AUMs (present) to 1,071 AUMs. Recreation use is expected to remain at about 300 visitor days per year. There would be an increase in sediments and salts of up to 26 percent for about 3 years and a long-term decrease of about 4 percent after that. These changes would have an immeasurably small effect on the White River. Deer and elk use would increase slightly due to increased forage from range improvements. No mineral development is anticipated although it would be allowed. No change in ownership of, or impact on, the 320 acres of private land surrounded by the WSA is expected to occur.

Oil Spring Mountain WSA

This 17,740 acre WSA is located about 25 miles southwest of Rangely in Rio Blanco County, Colorado. The area is dominated by flat-topped Oil Spring Mountain and its associated ridges and drainages. The mountain provides superior views of the surrounding landscape, including the High Uintas in Utah and Cathedral Bluffs to the east. diverse vegetation appears throughout the WSA ranging from sagebrush-saltbush and pinyon-juniper communities at lower elevations to mountain mahogany-oak scrub to Douglas-fir forest on top of Oil Spring Mountain.

- No Wilderness Alternative (Proposed Action and No Action). The wilderness values of naturalness, outstanding opportunities for solitude, and primitive unconfined recreation would be lost over the entire WSA due to oil and gas development, range improvements, and increased off-road vehicle use. While no change in use of the current 780 AUMs would occur, up to 40 AUMs of available forage could be lost due to disturbance from oil and gas development. Non-motorized recreational use would remain at 450 visitor days per year. Motorized vehicle use associated with hunting would increase by 200 visitor days per year to bring total recreation use to 650 visitor days per year. Oil and gas activities would cause a slight increase in sediment and contribution of salts, but these changes would be well within natural variations. There would a decline or displacement of about half the deer and elk using the WSA. Oil and gas development would be allowed, would proceed at a rate commensurate with new development in the vicinity, and would produce about 12,5 billion cubic feet of natural gas. No state or private lands would be affected.

- All Wilderness Alternative. Wilderness values of naturalness, and outstanding opportunities for solitude, and primitive and unconfined recreation would be lost on up to two-thirds of the 17,740 acre WSA due to oil and gas exploration and development. This oil and gas development would be allowed because the leases predate the Federal land Management Policy Act (FLPMA) of 1976. Livestock forage production would decrease by about one percent due to oil and gas activities, while operating costs for ranching operations would increase slightly due to restrictions on motor vehicle use. Opportunities for primitive recreation would be lost on about one-third of the area, although recreational use is expected to increase from 450 (present) to 550 visitor days per year. Recreational off-road vehicle use would be prohibited. There would be a slight increase in sediment and salt contribution, but this change in water quality is well within natural variations. There would be a direct decline or displacement of about one-fourth of the deer and elk using the area due to oil and gas disturbance. The area would be closed to further leasing and mineral entry, development would only be allowed on pre-FLPMA leases, and about 4.5 billion cubic feet of natural gas could be produced. No state or private lands would be affected.

- Boundary Adjustment Alternative. This alternative would differ from the All Wilderness Alternative only in that 770 acres previously held by the Colorado Division of Wildlife which were transferred to federal ownership would be included as wilderness.

Troublesome WSA

This 8,250 acre WSA is located about 18 miles north of Kremmling in Grand County, Colorado. The Troublesome WSA represents a rugged mountainous terrain varying in elevation from 8,000 to 10,000 feet. A rock slide and rock outcrops contribute to this ruggedness. Most of the unit is forested with lodgepole pine, spruce, fir, and aspen. Vegetative variety is enhanced by riparian habitat along Troublesome and Rabbit Ears creeks and a fungi lichen ecotone on rock outcrops.

- No Wilderness Alternative (Proposed Action and No Action). Wilderness values of solitude and naturalness would be lost on about 2,148 acres of the 8,250 acre WSA due to forest management activities, range improvements, and off-road-vehicle use. About 1,872 acres would be managed intensively for forest products, with timber harvested on 363 acres. Livestock forage production would increase from 730 AUMs (present) to 938 AUMs. Recreation use could potentially increase from current levels of 1,750 visitor days per year to 5,000 visitor days per year, with the motorized vehicle use component increasing from 10 up to 1,000 visitor days per year. There would be a slight increase in sediment yield and salt production. Deer and elk use of the WSA would decrease by 10 to 15 percent. Mineral leasing and mining claims would be allowed, but no mineral development is anticipated. No change in ownership of, or impact on, the 625 acres of private land surrounded by the WSA is anticipated.

- Partial Wilderness Alternative. Wilderness values would be protected on 6,102 acres, but would be lost on 2,148 acres due to forest management activities, range improvements, and off-road-vehicle use. As with the No Wilderness Alternative, abut 1,872 acres would be managed intensively with timber harvested on 363 acres. Livestock forage production would remain at present levels within the proposed wilderness area, but would increase by 200 AUMs in the portion of the WSA not proposed for wilderness. Recreation use levels would increase from current levels of 1,750 visitor days per year up to 6,000 visitor days per year on the proposed wilderness. Motor vehicle use outside the proposed wilderness would increase to 1,000 visitor days per year. There would be a slight increase in sediment yield and salt production. Deer and elk use would decrease by 10 to 15 percent. Mineral leasing and mining claims would be allowed on 2,148 acres (although no development is anticipated), and precluded within the 6,102 acres of wilderness. No change in ownership of, or impact on, the 625 acres of private land surrounded by the WSA is anticipated.

- All Wilderness Alternative. Wilderness values would be protected on 8,250 acres. Livestock forage production would remain at 730 AUMs, although operating costs for ranching operations would be slightly higher due to restrictions on the use of motor vehicles. Total recreation use would increase from current levels of 1,750 visitor days per year to 6,000 visitor days per year, and motorized vehicle use would be prohibited. There would be no changes in water quality. Deer and elk use would decrease by about 10 percent due to pressure from human use. The area would be closed to any mineral leasing and development. No change in ownership of, or impact on, the 625 acres of land surrounded by the WSA is anticipated.

Platte River Contiguous WSA

This 30 acre WSA is located about 18 miles north of Walden in Jackson County, Colorado. The Platte River contiguous WSA includes about one-fourth mile of the North Gate Canyon of the North Platte River and that portion of the canyon's rim which is part of the viewshed of the adjacent Plater River Wilderness. The WSA is 8,340 feet at its high point, a rock knob on the canyon rim; and 7, 980 feet along the west boundary on the low point within the canyon which is nearly 160 feet above the river. Within the WSA, north facing alcoves support a small stand of Douglas-fir trees where shaded areas retain snow and moisture. The remaining areas within the WSA are quite arid. Isolated pinyon and juniper trees grow along the canyon rim amongst rocks and boulders. Clumps of sagebrush, rabbit brush, and grasses provide a sparse ground cover due to exposed rock and shallow soils.

- All Wilderness Alternative (Proposed Action). Wilderness values would be protected (legislatively, as with all wilderness designation) on 30 acres under this alternative. This would also protect this 30 acres of the viewshed of the contiguous Platte River Wilderness Area (managed by the U.S.D.A. Forest Service). Due to the absence of forage livestock forage production within the WSA would be unaffected. Recreation use levels are expected to remain at the 10 visitor days per year. Mineral leasing and development would be precluded, although there is no current interest in any mineral resource, and no mineral development is anticipated to be foregone. There would be no impacts on wildlife, water quality, or private lands.

- No Wilderness Alternative (No Action). Impacts are very similar to the All Wilderness Alternative with two exceptions. First, the 30 acres would be protected administratively rather than legislatively. Second, the area would be open to entry of mining claims and mineral leasing although no development of any kind is anticipated.

CRAIG DISTRICT

(WHITE RIVER AND KREMMLING RESOURCE AREAS) DRAFT WILDERNESS ENVIRONMENTAL IMPACT STATEMENT

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CHAPTER 1

INTRODUCTION AND BACKGROUND (PURPOSE AND NEED)

INTRODUCTION

This Draft Wilderness EIS analyzes the impacts of designating or not designating eight wilderness study areas (WSAs) as wilderness. The WSAs are managed by the Bureau of Land Management (BLM) as part of the Craig District's White River and Kremmling resource areas in northwest Colorado. Map 1-1 shows the location of each WSA and Table 1-1 lists the acreage of each WSA.

BLM's wilderness program is a result of the Federal Land Policy and Management Act of 1976. Section 603 of this Act directed the BLM to review public lands suitable for inclusion in the National Wilderness Preservation System (NWPS), and then report to the Congress through the Secretary of the Interior and the President. Section 202 of FLPMA provides authority through the land use planning process to study and recommend as wilderness areas not covered under Section 603. While the study process is the same as for WSAs studied under Section 603, if the BLM Colorado State Director determines that the areas are nonsuitable for wilderness designation, he can drop them from further consideration. This would be done in the final land use planning decision. If they are found suitable, they would also be reported to Congress through the Secretary of the Interior and the President.

The Bull Canyon, Willow Creek, Skull Creek, Black Mountain, Windy Gulch, Oil Spring Mountain, and Troublesome WSAs are under Section 603 authority, while the Platte River Contiguous WSA falls under Section 202 authoritty.

WSA, Size, Location, and Affected Land Use Plan

Congress has the sole authority for designating any federally-administered land as wilderness. Congress will take the recommendations submitted by the President, along with any other information it may have obtained through its own sources, and will pass legislation that would formally designate WSAs as wilderness or release them for uses other than wilderness.

This Draft EIS replaces and supercedes the Draft Environmental Impact Statement for the White River Resource Area Wilderness Planning Amendment (USDI, BLM, 1983) and the wilderness analysis in the Kremmling Resource Management Plan/Environmental Impact Statement (USDI, BLM, 1984). This analysis also serves as a plan amendment for land-use plans covering the WSAs as identified in Table 1-1. Eight wilderness study areas in the Little Snake Resource Area, already analyzed in the Draft Wilderness Technical Supplement (WTS) to the Little Snake Resource Management Plan, are not analyzed further in this Draft EIS. The Draft WTS and this Draft EIS will, however, be combined to form a Craig District-wide Final Wilderness EIS. Table 1-2 presents a summary of the recommendations for the eight WSAs in the Little Snake Resource Management Plan (RMP).

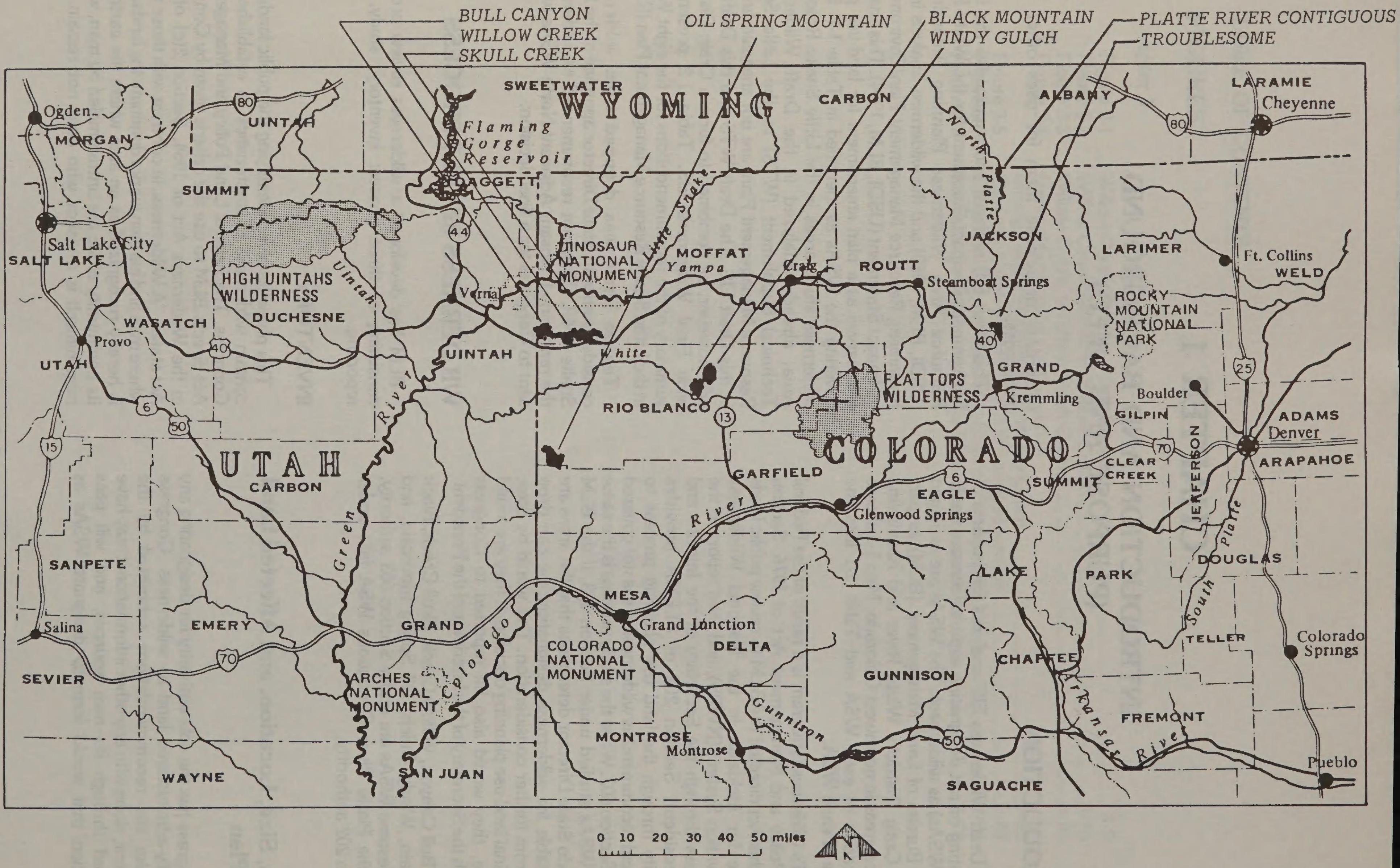
Teepee Draw was dropped from wilderness consideration with State Director approval of the Little Snake RMP. While not recommended as wilderness, the remaining Dinosaur Adjacent North WSAs will be sent to Congress for a final decision.

WILDERNESS REVIEW PROCESS

BLM has developed a wilderness review process consisting of three phases: inventory, study, and reporting.

INVENTORY

This phase involved identifying the public lands that contain wilderness characteristics as established by Congress. The Federal Land Policy and Management Act directs BLM to use the criteria given by Congress in the Wilderness Act of 1964. Section 2(c) of that Act states, "A Wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." An



Map 1-1. General Location of the WSAs

TABLE 1-1
WSA, Size, Location, and Affected Land Use Plan

Name	Size	Location	Affected Land Use Plan
Bull Canyon CO-010-001/ UT-080-419	12,297 acres	Moffat County, Colorado and Uintah County, Utah Approximately 4 miles north of Dinosaur, Colorado White River Resource Area	White River MFP * (Colo) Bookcliffs RMP ** (Utah)
Willow-Creek CO-010-002	13,368 acres	Moffat County, Colorado Approximately 7 miles northeast of Dinosaur, Colorado White River Resource Area	White River MFP
Skull Creek	13,740 acres	Moffat County, Colorado Approximately 7 miles northeast of Massadona, Colorado White River Resource Area	White River MFP
Black Mountain CO-010-007A	9,932 acres	Rio Blanco County, Colorado Approximately 11 miles west of Meeker, Colorado White River Resource Area	White River MFP
Windy Gulch CO-010-007C	12,274 acres	Rio Blanco County, Colorado Approximately 10 miles northwest of Meeker, Colorado White River Resource Area	White River MFP
Oil Spring Mountain CO-010-046	17,740 acres	Rio Blanco County, Colorado Approximately 25 miles southwest of Rangley, Colorado White River Resource Area	White River MFP
Troublesome CO-010-155	8,250 acres	Grand County, Colorado Approximately 18 miles north of Kremmling, Colorado Kremmling Resource Area	Kremmling RMP
Platte River Contiguous CO-010-104	30 acres	Jackson County, Colorado Approximately 18 miles north of Walden, Colorado Kremmling Resource Area	Kremmling RMP

* MFP Management Framework Plan

** RMP Resource Management Plan

These acreages are taken from the original WSA inventory boundary.

TABLE 1-2
WILDERNESS SUITABILITY RECOMMENDATIONS FROM THE LSRA RMP

Wilderness Study Area	WSA Number	Preliminarily Suitable Acres	Nonsuitable Acres
West Cold Springs	CO-010-208/ UT-080-103	0	17,682
Diamond Breaks	CO-010-214/ UT-080-113	36,240 *	340
Cross Mountain	CO-010-214	14,081	0
Dinosaur Adjacent North WSAs			
Ant Hills	CO-010-224	0	4,354
Chew Winter Camp	CO-010-224a	0	1,320
Peterson Draw	CO-010-226	0	5,160
Vale of Tears	CO-010-229d	0	7,420
Total		50,321	36,276

* 1,200 acres added to enhance manageability.

area of wilderness is further defined in this Act as an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunity for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, education, scenic, or historic value." Areas meeting these criteria were identified as WSAs. (These characteristics are explained in detail in the "Wilderness Inventory Handbook - Policy, Direction, and Procedures and Guidance for conducting Wilderness Inventory on the Public Lands" - BLM September, 1978.)

The inventory phase was completed in November, 1980. These eight WSAs were found to contain wilderness characteristics (Final Wilderness Study Areas USDI, BLM, Colorado, 1980).

STUDY

This phase recommends WSAs as suitable or nonsuitable for wilderness designation. Based on FLPMA, BLM must determine whether an area is more suitable for wilderness designation or more suitable for other uses, considering all values, resources, and uses of the public lands.

Guidance for the Wilderness Study Policy comes from the following sources:

- BLM's Wilderness Study Policy
- National Environmental Policy Act
- Wilderness Act of 1964
- BLM's Wilderness Management Policy
- BLM planning regulations

Two planning criteria and six quality standards are identified in the BLM's Wilderness Study Policy. They apply to each WSA under consideration.

Planning Criteria

Criterion 1. Evaluation of Wilderness Values

Consider the extent to which each of the following components contributes to the following values:

1. Mandatory wilderness characteristics— The quality of wilderness characteristics, including size, naturalness, and outstanding opportunities for solitude or primitive recreation.

2. Special features - The presence and quality of the optional wilderness characteristics, including ecological, geological, or other features of scientific, educational, scenic, or historical value.

3. Multiple resource benefits - The benefits to other resources and uses which wilderness designation would ensure.

4. Diversity in the National Wilderness Preservation System - The extent to which wilderness designation would contribute to expanding the diversity of the National Wilderness Preservation System from the standpoint of each of the following factors:

   — Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

   — Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers.

   — Balancing the geographic distribution of wilderness areas.

Criterion 2. Manageability

The area must be capable of being effectively managed to preserve its wilderness character.

Quality Standards

The six quality standards for analysis and documentation are:

1. Energy and Mineral Resource Values - Any identified or potential energy and mineral resource values must be considered.

2. Impacts on Other Resources - The extent to which other resource values or uses of the area would be foregone or adversely affected as a result of wilderness designation must be considered.

3. Impact of Nondesignation on Wilderness Values - The alternative use of land under study if the area is not designated as wilderness, and the extent to which the wilderness values of the area would be foregone or adversely affected as a result of this use, must be considered.

4. Public Comment - Comments received from interested and affected publics at all levels must be considered.

5. Local Social and Economic Effects - Special attention will be given to adverse or favorable social and economic effects which designation of the area would have on local areas.

6. Consistency with Other Plans - Consistency with officially-approved and adopted resource-related plans of other federal agencies, as well as state and local governments must be considered.

In addition to these criteria and quality standards, issues and alternatives identified during the scoping process will also be analyzed in this environmental impact statement.

REPORTING THE RESULTS OF THE ANALYSIS

Reporting is the final phase of the wilderness review process. Upon completion of this study a recommendation on whether each WSA is suitable or nonsuitable for designation as wilderness in the National Wilderness Preservation System will be made by BLM through the Secretary of the Interior to the President. This recommendation will be contained in a Wilderness Study Report.

The recommendation to the President will also include a mineral survey for those WSAs recommended as suitable. This survey will be conducted by the U.S. Geological Survey and Bureau of Mines.

The President will then make his recommendation to the Congress. Only Congress can designate an area as wilderness.

INTERIM MANAGEMENT

Until Congress either designates a WSA as wilderness or releases it for other uses, all WSAs will be managed under BLM's Interim Management Policy and Guidelines for Lands under Wilderness Review. This will maintain wilderness qualities inherent to each WSA until the time Congress makes its final decisions.

SCOPING

At the beginning of this EIS process, the BLM, the public, other federal agencies, and state and local governments identified issues and management concerns regarding wilderness designation.

Public meetings were held as follows:

Location	Date
Denver	November 13, 1986
Grand Junction	November 17, 1986
Kremmling	November 19, 1986
Meeker	November 20, 1986
Craig	December 8, 1986

Meetings were also held with the Environmental Protection Agency, Colorado Department of Natural Resources, the Craig District Advisory Council, the Grand County Commissioners, and several interest groups. Letters from interested parties were also received. The information gathered at these meetings was reviewed and considered for inclusion in the analysis.

The topics were then screened and compiled to determine which were germane to this wilderness analysis. The first step in the screening process was to determine if concerns were related to wilderness designation. Because the purpose of this EIS is to assess the suitability of WSAs for inclusion in the National Wilderness Preservation System, concerns which dealt with other actions by BLM or other government agencies were not included. Where impacts would result from designation or nondesignation they were carried forward for further analysis. This EIS deals with these concerns or issues directly related to or affected by wilderness designation.

ISSUES SELECTED FOR DETAILED EVALUATION

The following environmental issues (impact topics) were selected for detailed evaluation and analysis. The analysis presents a reasonable picture of what may occur. The numbers in the analysis represent estimates that while reasonable, should not be regarded as precise forecasts of actual impacts.

Impacts on:

— Wilderness Values

— Ranching Operations

— Recreation Use and Quality

— Water Quality

— Big Game Species (Populations and Habitat) and Eagles

— Mineral Resource Exploration and Production

— Private and/or State Lands

— Forest Management (Troublesome WSA only)

Table 1-3 lists the issues analyzed by WSA.

ISSUES NOT SELECTED FOR DETAILED EVALUATION

The following subjects were also suggested during scoping but have not been analyzed in detail for the reasons described.

Impacts On Air Quality

BLM is not proposing any change in air quality designation. The BLM's Wilderness Management Policy (USDI, BLM, 1981) states:

> "Under the Clean Air Act (as amended, 1977), BLM-administered lands were given a Class II air quality classification, which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. The BLM will manage designated wilderness areas as Class II unless they are reclassified by the State as a result of the procedures prescribed in the Clean Air Act (as amended, 1977).
>
> According to the Clean Air Act, air quality reclassification is the prerogative of the States. The States must follow a process mandated by the Clean Air Act Amendments of 1977, involving a study of health, environmental, economic, social, and energy

TABLE 1-3
IMPACT ANALYSIS ISSUES BY WSA

Wilderness Study Area	Issues Impacts Analyzed							
	Wilderness Values	**Ranching Operations**	**Recreation Use and Quality**	**Water Quality**	**Big Game Species (Populations and Habitat) and Eagles**	**Minerals Exploration and Production**	**Private State Lands**	**Forest Management and Production**
Bull Canyon	X	X	X	X	X	X	X	
Willow Creek	X	X	X	X	X	X	X	
Skull Creek	X	X	X	X	X	X	X	
Black Mountain	X	X	X	X	X	X	X	
Windy Gulch	X	X	X	X	X	X	X	
Oil Spring Mountain	X	X	X	X	X	X	X	
Troublesome	X	X	X	X	X	X	X	X
Platte River Contiguous	X	X	X	X	X	X	X	

> effects, a public hearing, and a report to the Environmental Protection Agency.
>
> Administrative actions within wilderness areas will comply with the air quality classification for that specific area."

Air quality has not been carried forward as an issue for detailed analysis because regardless of designation or nondesignation, no projects are anticipated which might adversely affect long-term air quality or air quality classifications. While some projects would occur, they would be temporary and produce very limited amounts of fugitive dust and smoke.

Impacts on Groundwater

Because the only direct impacts on groundwater would occur through subsurface activities (such as oil and gas exploration drilling and mining operations) and such activities are regulated through CFR 3162.5-1 (see also onshore oil and gas order #2 - drilling operations, effective 12/19/88) and standard operation stipulations, no significant impacts to ground water are expected.

Impacts on Water Rights

Concerns were raised regarding how water rights would be affected by wilderness designation or nondesignation. This concern resulted, in part, from the uncertainty as to whether or not water rights for wilderness were reserved when Congress created the NWPS.

On July 26, 2988, the Attorney General concurred with the DOI solicitor's opinion that Congress did not intend to reserve Federal water rights for wilderness purposes when it created the NWPS. However, Congress still has the power to reserve water rights for wilderness areas when it deems it necessary through appropriate legislation on specific provisions in wilderness legislation.

While water rights certainly have an implication on water supply and usage, the issue is not an environmental issue that is appropriate for analysis in this EIS, but rather a legal matter to be addressed separately from the environmental review process. For these reasons, the issue was dropped from further analysis, although it is recognized as having a potential impact on the future uses and condition of the lands and resources analyzed in this EIS.

An issue that has been recently raised is whether there would be an impact of a reserved wilderness water right on the transfer of existing rights within the stream system or through a transbasin diversion. Transfers from above or within a wilderness area to below the wilderness area would clearly not be affected since no less water would be allowed to flow through the wilderness. Only where transfers could result in the movement of rights from below to within or above the wilderness is there a potential effect. No such transfers are currently known to be proposed within any of the WSAs. Even if such transfer is proposed in the future, the effects are likely to be minimal. Limitations that would be placed on such a transfer because of wilderness would be no more significant than those automatically imposed by other water rights more senior than any reserved wilderness water right. Even in the unlikely event that this were not the case, it is probable that flexibility could be provided to the water right holder while still assuring complete protection of the specific wilderness values associated with water flows through the WSA. Mitigations, flow augmentation measures, water right exchanges, purchases or donations and other local avenues could provide the means to accomplish this.

Since there are no expected effects on existing water rights and no proposals to transfer water rights are known or anticipated that would be significantly affected, this impact topic was dropped from further analysis for the WSAs in this environmental impact statement.

Impacts on Cultural Resources

Wilderness designation or nondesignation will not change the management status of any cultural resource that may be located within a wilderness area. Wilderness designation in itself is not an effective means of managing cultural resources. Cultural resources, whether in a wilderness area or not, are managed by the Colorado Bureau of Land Management under a set of specific Laws, Regulations, and Policies (National Historic Preservation Act of 1979 as amended, 36 CFR 800, Colorado Programmatic Agreement between the State Historic Preservation Officer and the Bureau of Land Management 1987, and Wilderness Management Policy 1981). These laws and policies apply to all cultural resources regardless of wilderness designation. Impacts that could occur to cultural resources may occur whether an area is designated wilderness or not. Any activity that is permitted within the areas will have to comply with these laws and policies.

Unpermitted activities such as vandalism, are also covered by laws and policy. Under wilderness designation, some existing vehicular access would be restricted, but non-vehicular uses might increase. A wilderness management plan will be developed that will assure adequate protection. These wilderness management plans will specifically address cultural resource and protection measures.

In areas not designated wilderness, if impacts to cultural resources are found to be occurring, the same measures would be implemented to assure protection, including closure of vehicular access roads, if necessary .

Consequently, impacts to cultural resources would remain approximately the same with or without wilderness designation.

Impacts on Riparian Habitat

No changes in riparian habitat are expected to occur as a result of wilderness designation or nondesignation. A concern was raised during the scoping process that overgrazing may adversely affect riparian habitat in the WSAs and may thereby impair an area's wilderness characteristics. Grazing is consistent with BLM's Wilderness Management Policy. Wilderness designation in and of itself would neither preclude grazing nor protect riparian habitat, unless damage is occurring which detracts from the area's wilderness characteristics. Whether designated wilderness or not, grazing will be managed in the WSAs to prevent riparian resource damage. Therefore, this concern has not been carried forward as an issue. Any area not designated would also be managed to protect riparian values such as diversity of wildlife and plant species, water quality and supply, ground water aquifers, and fish habitat.

Impacts on Threatened and Endangered Species (Plant and Animal)

Informal consultation with the U.S. Fish and Wildlife Service has identified no federally listed or candidate plant species within any of the eight WSAs. Listed animal species which may visit the areas are bald eagle and peregrine falcon. While habitat for these species does exist in the WSAs, none are known to inhabit any of the WSAs. This concern has not been carried forward for detailed analysis because whether or not the WSAs are designated as wilderness, these species will be protected.

Impacts on Wilderness Values Within Dinosaur National Monument

During the public scoping meetings a concern was raised regarding wilderness values in Dinosaur National Monument (DNM). None of the WSAs analyzed in this Draft EIS are adjacent to DNM nor do they share wilderness characteristics with lands in DNM that are administratively endorsed for inclusion in the National Wilderness Preservation System. Bull Canyon, Willow Creek, and Skull Creek are approximately seven miles south of DNM and are visible from the road which runs north from DNM headquarters (see Map 1-2). No activities are proposed or expected within the WSAs, either with or without wilderness designation, that would impact DNM lands proposed as wilderness.

Impacts to Dendrochronology (Tree Ring Dating) Studies

In 1976 and 1980 pollen and dendrochronology sites were studied in the vicinity of the Bull Canyon, Willow Creek, and Skull Creek WSAs. No studies are currently underway; however, some sites within the WSAs could again be studied. No action is proposed that would conflict with or preclude future studies.

Techniques, such as the collection of tree ring cores using hand tools, are compatible with wilderness designation. Wilderness designation would not preclude these studies.

> "Research is a valid and important use of the wilderness resource. Research will be permitted and encouraged as long as all projects are conducted in such a manner as to preserve the area's wilderness character and they further the management, scientific, educational, historical, and conservation purposes of the area." (Wilderness Management Policy USDI, BLM, 1981)

Because no research or study is presently proposed for these WSAs, and no action is anticipated with or without designation of these areas as wilderness that would render the areas unsuitable for further studies, this issue has not been carried forward for detailed analysis.

Impacts on Lands and Realty Actions

No major lands or realty actions (such as exchanges, rights-of-way, dams, powerlines, or pipelines) exist or are proposed within these WSAs. Therefore, this issue has not been carried forward for detailed analysis.

Impacts on Oil Shale Development

Two of the WSAs, Black Mountain and Windy Gulch, contain minor amounts of Green River Formation oil shale. The thick, rich beds of the Mahogany Zone are entirely eroded off and only an insignificant remnant of the lower Parachute Creek Member still exists. The oil shale in the WSAs is found in the Garden Gulch Member in one or two thin, relatively Kerogen-rich beds. There is practically no oil shale resource data for the Gray Hills because of the insignificant quantities of oil shale present. Black Mountain is assumed to contain approximately 18,000 barrels of oil per acre and Windy Gulch 12,000 barrels per acre at depths ranging from zero to four hundred feet. (Herrick, 1987)

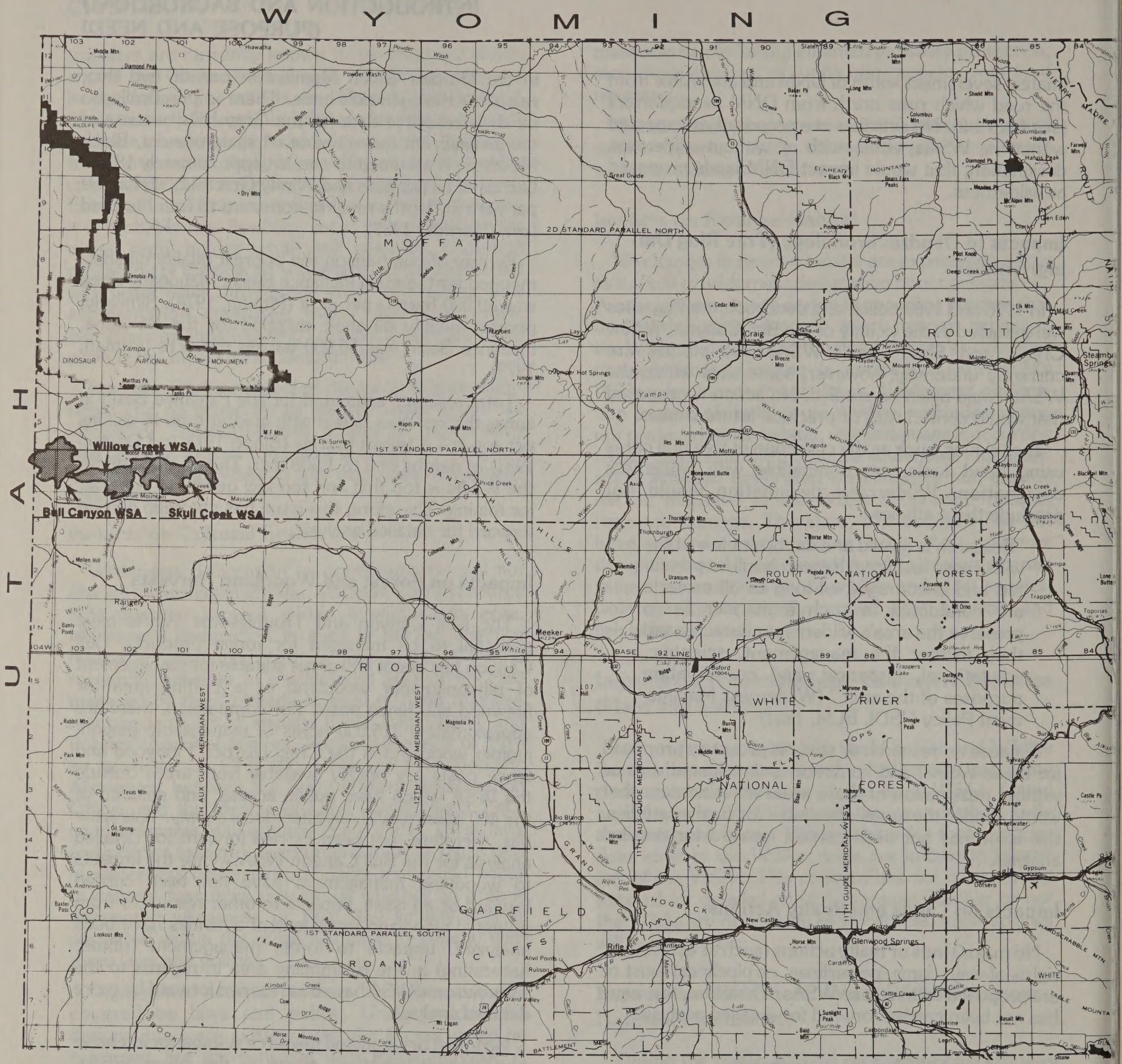
By way of comparison the poorest quality oil shale mapped for the main Piceance Basin, Mahogany Zone was 50,000 barrels per acre (Pitman, 1978). Similarly, poorest quality oil shale mapped for the R6 Zone, Piceance Basin was 50,000 barrels per acre (Pitman, 1979).

Total reserves estimated for the Piceance Basin in zones thicker than 15 feet with greater than 15 gallons per ton is 1.3 trillion barrels (Blood 1973 and Dayton 1981) at depths of 0 to 1,500 feet. The oil shale under the WSAs is too thin and too low quality to consider for mining. Therefore, this issue has not been carried forward for detailed analysis.

Impacts on Forest and Woodland Harvests

The Bull Canyon and Troublesome WSAs have potential to be managed for forest products. Bull Canyon has about 400 acres suitable for management of pinyon-juniper woodland as a cutting area for firewood and fence posts. For comparison, there are approximately 316,000 acres of manageable pinyon-juniper woodland in the Craig District. Firewood and fence posts are readily available from areas outside the WSA which have public access, and deletion of the 400 acres would not affect local supply. This issue has, therefore, not been carried forward for detailed analysis for the Bull Canyon WSA. While the impacts to woodland management have not been carried forward as an issue, impacts to other resources from potential woodland management activities have been analyzed. Impacts to forest management (timber harvesting) in the Kremmling area in regards to the Troublesome WSA have been carried forward for more detailed analysis.

No forest or woodland resource suitable for intensive management practices exists in the other WSAs, although they have in the past received occasional use by individuals for firewood and Christmas tree cutting. Again, because of the availability of woodland resources (316,000 acres in the Craig District), this issue has not been carried forward for more detailed analysis for the other WSAs.



Map 1-2 Location of Bull Canyon, Willow Creek and Skull Creek WSA's in Relation to Dinosaur National Monument

Scale 1:1,000,000

1 inch equals Approximately 16 miles

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometers

N

Impacts on Local Economics

Local economies would not be substantially affected from either designation or nondesignation of wilderness. Oil and gas development on Oil Spring Mountain, or timber harvesting near Troublesome Creek, would only cause a small increase (less that one percent) in local incomes. Economic conditions in the energy-related economies in northwest Colorado (Craig, Meeker, Rangely, and Dinosaur) are much more affected by energy prices and related oil, gas, and coal development than by the amount of activity anticipated to occur within the WSA boundaries. The revenue generated from recreation related to the WSAs is expected to be less than one percent of the local economic base if the areas are designated.

An exception, under which a larger change could occur, would be oil and gas development near Dinosaur in the Bull Canyon and Willow Creek WSAs. Low potential exists that oil and gas could be discovered in large quantities in the Blue Mountain Unit (see Affected Environment for more details). However, at this time, not enough data is available to accurately predict whether or not oil and gas development will actually occur, and if so, in what quantities. While any revenues associated with oil and gas development would be foregone if the WSAs are designated wilderness, no discussion of effects on local economies has been included because to do so would be highly speculative.

Impacts on Paleontological Resources

No significant paleontological resources are currently known to exist within the wilderness study areas. While the potential for discoveries exists, no sites have been identified to date. Paleontological resources are protected by the Federal Land Policy and Management Act. If a WSA is designated as wilderness, any paleontological resources which may be present would not be disturbed because no surface or subsurface-disturbing activities are anticipated to occur. If important paleontological resources are discovered, their recovery would not necessarily be precluded, although restrictions on the use of mechanized equipment could result in greater costs or other logistical difficulties. If an area is not designated as wilderness, any paleontological resources which may be discovered would be protected through mitigation, although undiscovered paleontological resources might be disturbed inadvertently. Because no impacts to known paleontological resources are anticipated with or without wilderness designation, and no paleontological resources are known to exist within the WSAs, this issue has not been carried forward for detailed analysis.

OTHER CONCERNS

Several questions regarding BLM's wilderness policies were raised during the scoping process. A complete discussion of BLM's wilderness management policies is contained in the *Wilderness Management Policy, U.S. Department of the Interior, Bureau of Land Management* (September 24, 1981). The following discussion highlights topics raised during the scoping meetings which will not be discussed elsewhere in this document.

> — BLM is not proposing management of private lands adjacent to the WSAs. Designation or nondesignation of the WSAs as wilderness would not dictate management of the adjacent private lands. BLM has no jurisdiction over these lands and any development of adjacent lands would be at the discretion of the owners. Since development of these lands is not a consequence of any action by BLM, it has not been carried forward as an issue. It should be noted, however, that development on adjacent private lands may play a role in the decision and recommendation process. No developments are currently underway that would seriously detract from the identified wilderness characteristics.
>
> — The use of motorized or mechanized equipment (four wheel drive vehicles, trail bikes, snowmobiles, etc.) within wilderness areas would not be allowed except as necessary in support of valid existing rights or livestock management where no reasonable alternatives exist.
>
> — Livestock grazing at previously established levels is an acceptable use within wilderness.
>
> — Valid existing rights at the time of designation would be recognized.

A Wilderness Management Plan will be developed for each area designated that will identify specific objectives for the wilderness area. These plans will consider the different kinds of environmental settings, history of use, and management situations pertaining to the specific wilderness area.

If designated as wilderness, the areas would be managed under the following general statement contained in the Wilderness Management Policy (USDI, BLM, 1981):

> "The Department of the Interior's policy is to manage wilderness areas under the administration of the Bureau of Land Management so as to preserve their wilderness character and to manage them for the use and enjoyment of the American people in a manner that will leave them unimpaired for future use and enjoyment as wilderness. The wilderness areas will be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.
>
> The Department's policy is to allow nonconforming but accepted uses specifically permitted in wilderness areas by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character.
>
> The Department's policy is to manage BLM wilderness areas consistent with the policies above so as to augment multiple use management of adjacent and nearby lands through protection of watersheds and water yield, wildlife habitat, natural plant communities, and similar natural values."

PARAMETERS OF THE ANALYSIS

This analysis is designed to explain the impacts and trade-offs of wilderness designation or nondesignation for eight wilderness study areas. While scenarios are presented in Chapter 2 which describe activities that might take place should the WSA not be designated as wilderness, it must be understood that this is not an authorizing or National Environmental Policy Act (NEPA) compliance document for those activities. Any development or management activities that may occur should a WSA not be designated as wilderness will require environmental analysis (NEPA compliance documents) separate from this EIS; decisions regarding them will also be made separately.

CHAPTER 2

DESCRIPTION OF THE ALTERNATIVES AND SUMMARY OF THE IMPACTS

INTRODUCTION

This chapter presents the alternatives analyzed, management activities that would occur under each alternative, and a summary of the impacts for each WSA.

The alternatives analyzed provide a range of choices regarding wilderness designation. Alternatives range from protecting wilderness values to allowing resource development.

FORMULATION OF ALTERNATIVES

Four alternatives were initially considered for each WSA:

— designating the entire WSA as wilderness;

— not designating any of the WSA as wilderness;

— designating a portion of the WSA as wilderness;

— designating an area larger than the WSA as wilderness;

— in addition, a combination alternative was considered for adjacent WSAs.

Public comments received during the scoping process and comments on the previously published analyses (Draft Environmental Impact Statement for the White River Resource Area, Wilderness Planning Amendment, and the Kremmling Resource Management Plan) were considered. Alternatives that have been eliminated, and those carried forward for analysis, are discussed in their appropriate sections.

Alternatives Considered But Eliminated From detailed Study

Review of the 1980 final wilderness inventory data, aerial photography, and on-the-ground investigations were conducted to evaluate federal lands adjacent to the WSAs. While some small boundary adjustments were identified, no large adjacent tracts of land were found to possess wilderness characteristics; thus, designation of areas larger than the WSAs and expansion of the WSAs were considered but not analyzed in detail.

BULL CANYON/WILLOW CREEK WSAs

An alternative was considered that would have combined the Bull Canyon and Willow Creek WSAs. Because of a paved road separating these two WSAs, this alternative was not considered further.

BULL CANYON, WILLOW CREEK, AND SKULL CREEK WSAs

Boundary adjustments and state lands with potential for inclusion were identified through a review of the boundaries of the WSAs. These will be discussed further in following sections of this chapter. While state lands with potential for wilderness designation were identified, no detailed inventory of these lands has been conducted.

WILLOW CREEK WSA

An alternative was proposed during the scoping process to include additional federal and state lands on the southwestern boundary of the Willow Creek WSA. A review of lands in this area indicated they did not contain wilderness characteristics because of development activities associated with past oil and gas drilling (noticeable drill pads and roads). Because these lands do not contain wilderness characteristics, they have not been considered for inclusion in any alternative.

TROUBLESOME WSA

Lands along the western boundary of the Troublesome WSA were also proposed as an expansion alternative for that WSA. Because maintenance of an existing ditch that forms a portion of the boundary of the WSA, as well as the character of the ditch itself, would not be consistent with wilderness characteristics, this alternative was not carried forward for detailed analysis.

An alternative was also considered that would have combined the Troublesome WSA with adjacent lands administered by the U.S. Forest Service (USFS), forming a larger wilderness. The lands adjacent to the Troublesome WSA have been reviewed by the USFS and found not to contain wilderness characteristics (Ryberg 1987). Therefore, this alternative was not carried forward for detailed analysis.

Designation of only a portion of a WSA was considered if:

— difficulties might exist in maintaining an area's wilderness characteristics (adjacent roads and development, or potential enforcement problems associated with precluding motor vehicle use)

— a potential conflict might be resolved by excluding a portion of the area (timber harvest, potential oil and gas development, or range improvement projects) as long as a large enough area (5,000 acres) with wilderness characteristics remained

— wilderness characteristics might differ in quality within a portion of a WSA (cumulative effects of imprints of man which by themselves are substantially unnoticeable, but which in aggregate might detract from wilderness characteristics, such as drill pads, ways, and trails)

No partial wilderness alternatives were identified for Bull Canyon, Black Mountain, Windy Gulch, Oil Spring Mountain, or Platte River Contiguous WSAs because these three conditions were not found to apply. No further boundary adjustments that are reasonable can be made to the Bull Canyon, Black Mountain, or Windy Gulch WSAs that would exclude proposed development. The Oil Spring Mountain WSA boundary cannot be adjusted to exclude proposed oil and gas development and still have a valid wilderness proposal. The Platte River Contiguous WSA is too small to consider a partial wilderness alternative.

Partial wilderness alternatives were identified for the Willow Creek, Skull Creek, and Troublesome WSAs and will be discussed in the following section of this chapter.

Alternatives Analyzed in Detail

Alternatives analyzed for the various WSAs are listed below:

— Bull Canyon WSA - Boundary Adjustment (Proposed Action), All Wilderness (Proposed Action), No Wilderness (No Action)

— Willow Creek WSA - All Wilderness (Proposed Action), No Wilderness (No Action), Conflict Resolution (Portions of Willow Creek WSA combined with portions of Skull Creek WSA), Combined All Wilderness (with Skull Creek WSA)

— Skull Creek WSA - All Wilderness (Proposed Action), No Wilderness (No Action), Conflict Resolution (Portions of Skull Creek WSA Combined with portions of Willow Creek WSA), Combined All Wilderness (with Willow Creek WSA)

— Black Mountain WSA - No Wilderness (Proposed Action and No Action), All Wilderness

— Windy Gulch WSA - No Wilderness (Proposed Action and No Action), All Wilderness

— Oil Spring Mountain WSA - No Wilderness (Proposed Action and No Action), Boundary Adjustment, All Wilderness

— Troublesome WSA - No Wilderness (Proposed No Action), Partial Wilderness, All Wilderness

— Platte River Contiguous WSA - All Wilderness (Proposed Action), No Wilderness (No Action)

The proposed action for each WSA is presented first, followed by the other alternatives. The No Wilderness Alternative is also the No Action Alternative and presents what is likely to occur on the WSA if wilderness designation does not occur.

MANAGEMENT ACTIONS UNDER THE VARIOUS ALTERNATIVES

Those activities which are likely or reasonably anticipated under the various alternatives are presented in this chapter. These management activities are separate and distinct from the issues (impact topics) presented in Chapter 4 - Environmental Consequences. Those impacts are noted in the impact summaries in Chapter 2.

Chapter 2 presents only those anticipated management actions that BLM would take or allow while Chapter 4 talks about the impacts of those actions on various resources. For example, if no mention of forest management is made for a particular WSA, it is because no forest management actions are anticipated.

Only those management actions which are anticipated to occur within the WSAs have been included in the discussions. The management actions presented are not intended to be a comprehensive list of what may be possible, but do present all anticipated or reasonably foreseeable activities. An effort has been made to focus the analysis on resources which might be impacted and the actions which might cause impacts.

The various alternatives project activities that are likely or may occur during the next 20 to 30 years. This analysis claims no special insights into the future; however, the alternatives have been developed by identifying activities that are reasonably foreseeable or might occur based on the knowledge of the resources present within the WSAs and the region. This analysis is not intended to serve as a NEPA compliance document for those activities, and environmental analyses (NEPA compliance documents) separate from this EIS will be prepared for them. Possible development identified under the No Wilderness Alternative for the WSAs is neither proposed nor authorized by this analysis. Development scenarios that could reasonably occur have been developed for analysis purposes, in order to describe possible impacts that could result from their implementation.

A complete discussion of allowable activities and uses, should the WSAs be designated wilderness, is presented in the Wilderness Management Policy, U.S. Department of the Interior, Bureau of Land Management, September 1981.

SUMMARY OF THE IMPACTS

A summary of the impacts is presented for each WSA. The summary has been compiled from the conclusions presented in Chapter 4 - Environmental Consequences. The summary is not a complete analysis in and of itself and supporting analysis and documentation are presented in Chapter 4.

BULL CANYON WILDERNESS STUDY AREA ALTERNATIVES

BULL CANYON WSA - BOUNDARY ADJUSTMENT ALTERNATIVE (PROPOSED ACTION)

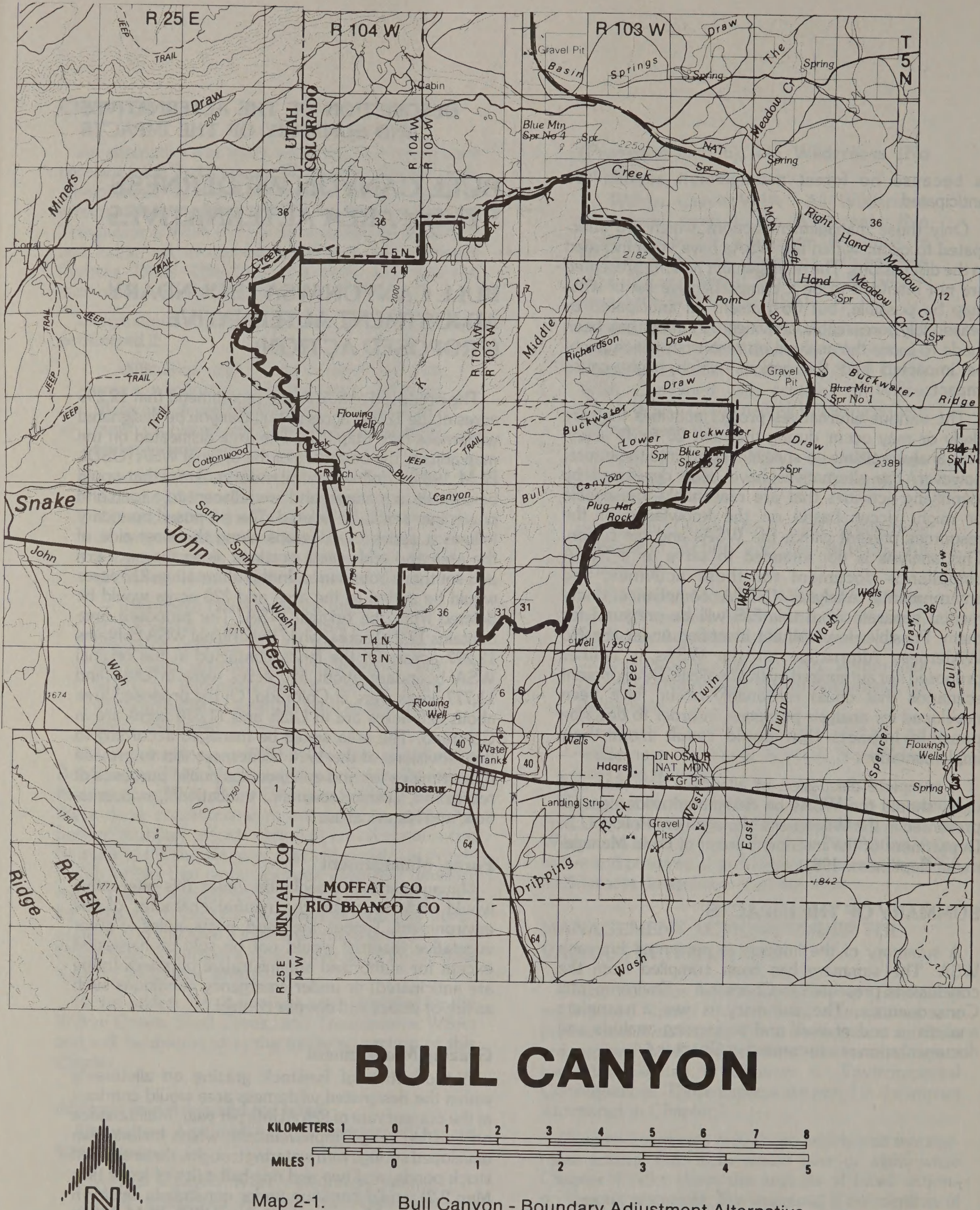
The proposed action would recommend that 12,290 acres of the 12,297 acres in Bull Canyon be designated wilderness (see Map 2-1). The area delineated on the map adjusts the boundary of the original WSA (USDI, BLM, 1980) to follow natural features. Areas that would be difficult to manage, and are adjacent to a road and powerline, would be deleted. The proposed boundary follows a series of ridgetops along the west side of the area and adds small portions along the northern and southern boundaries. In this alternative, 213 acres would be added to the area and 220 acres would be deleted from the original WSA. The proposed area contains 12,290 acres, while the original WSA contains 12,297 acres. Of the lands contained in the original WSA boundary about 520 acres were in Utah and 11,777 acres were in Colorado. Of the proposed area about 620 acres are in Utah and 11,670 acres are in Colorado. The area would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Forest Management

Management of woodlands under this alternative would seek to retain the natural character of the environment. Timber, fuelwood, posts, poles or other vegetative material would not be sold or harvested except for authorized administrative purposes (none are anticipated) or under emergency conditions such as fire or insect and disease control.

Grazing Management

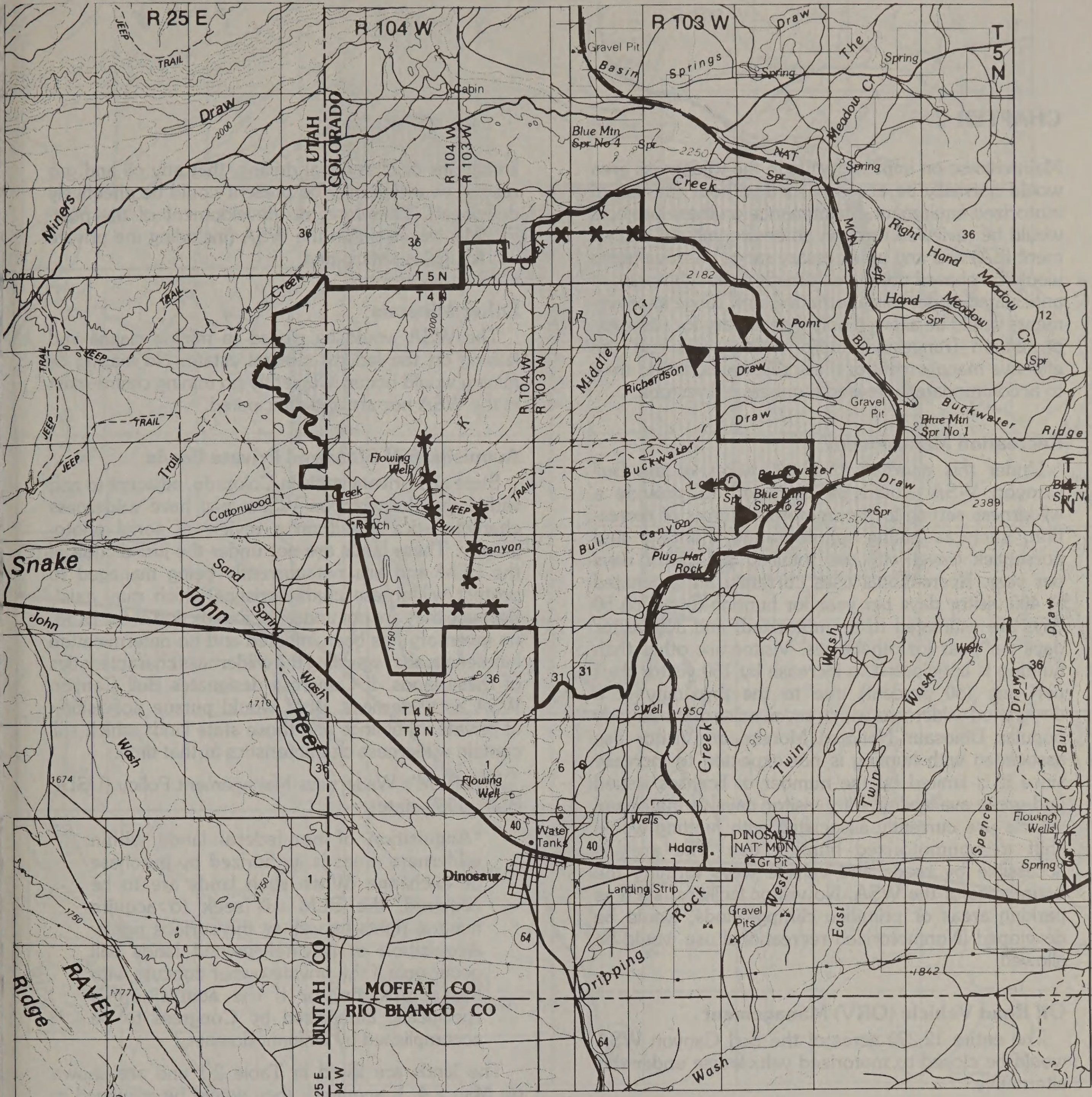
Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 826 AUMs per year. Maintenance on existing range improvements, which include two developed springs with watering troughs, three earthen stock ponds, and two and one-half miles of fence (see Map 2-2) would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981).



Map 2-1. Bull Canyon - Boundary Adjustment Alternative

WSA Boundary —

Boundary Adjustment Alternative —



BULL CANYON

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

Map 2-2 Bull Canyon - Exisiting Range Improvements

Fence ✕✕✕

Spring ←○

Stock Pond ▶

Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. Maintenance on these projects would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out or reclaimed. Although none are anticipated under this alternative, new range improvements would be allowed only if necessary for resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, 12,290 acres of the Bull Canyon WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation, such as hiking, photography, hunting, and horseback travel with use totalling 850 visitor days per year. Recreational uses currently are estimated at 400 visitor days per year for hunting (of which 50 days are estimated to be motorized) and 300 visitor days per year for other uses. Visitor use other than hunting is anticipated to increase by 150 visitor days per year (50 percent) due to the proximity of a designated wilderness within seven miles of the already popular Dinosaur National Monument. Visitor use associated with hunting is not expected to increase since it is limited by the number of licenses issued and game availability. Fifty visitor days of motorized vehicle use currently associated with hunting would shift to nonmotorized hunting use. The area is accessible by roads and vehicle ways forming the boundaries of the WSA. No visitor facilities, such as parking areas or primitive campgrounds, would be developed. Nonmotorized recreational use would be allowed.

Off Road Vehicle (ORV) Management

The entire 12,290 acres of the Bull Canyon WSA would be closed to motorized vehicle use under this alternative.

Minerals Management

Oil and Gas

The 12,290 acres of the federal mineral estate within the WSA would be withdrawn from further leasing. No pre-FLPMA leases exist within the WSA, therefore, no development of oil and gas would be allowed. Development of post-FLPMA (see Map 2-3) leases would be administratively allowed through means such as directional drilling. It is highly unlikely, however, because of local geologic conditions and the technical limitations of directional drilling, that any oil and gas resources which may be present could be effectively developed. Therefore, no development of the post-FLPMA leases within the WSA (including the private inholdings) is anticipated.

Other Minerals

The WSA would be closed to mining claims and leasing on the federal mineral estate. No leasing or mining would occur. Currently no mining claims exist in the WSA nor are any anticipated.

Acquisition of State and Private Lands

State and private lands in Colorado, adjacent to and within the Bull Canyon WSA, may have wilderness characteristics based on a review of aerial photography. These lands are not under the jurisdiction of the BLM and are not currently being managed to protect wilderness characteristics which may exist. Because they are not under the jurisdiction of the BLM, no inventory has been initiated and no determination has been made regarding the wilderness characteristics of these lands. If Congress designates Bull Canyon WSA as wilderness, BLM would pursue acquisition of private inholdings and those state lands which still contain wilderness characteristics at that time.

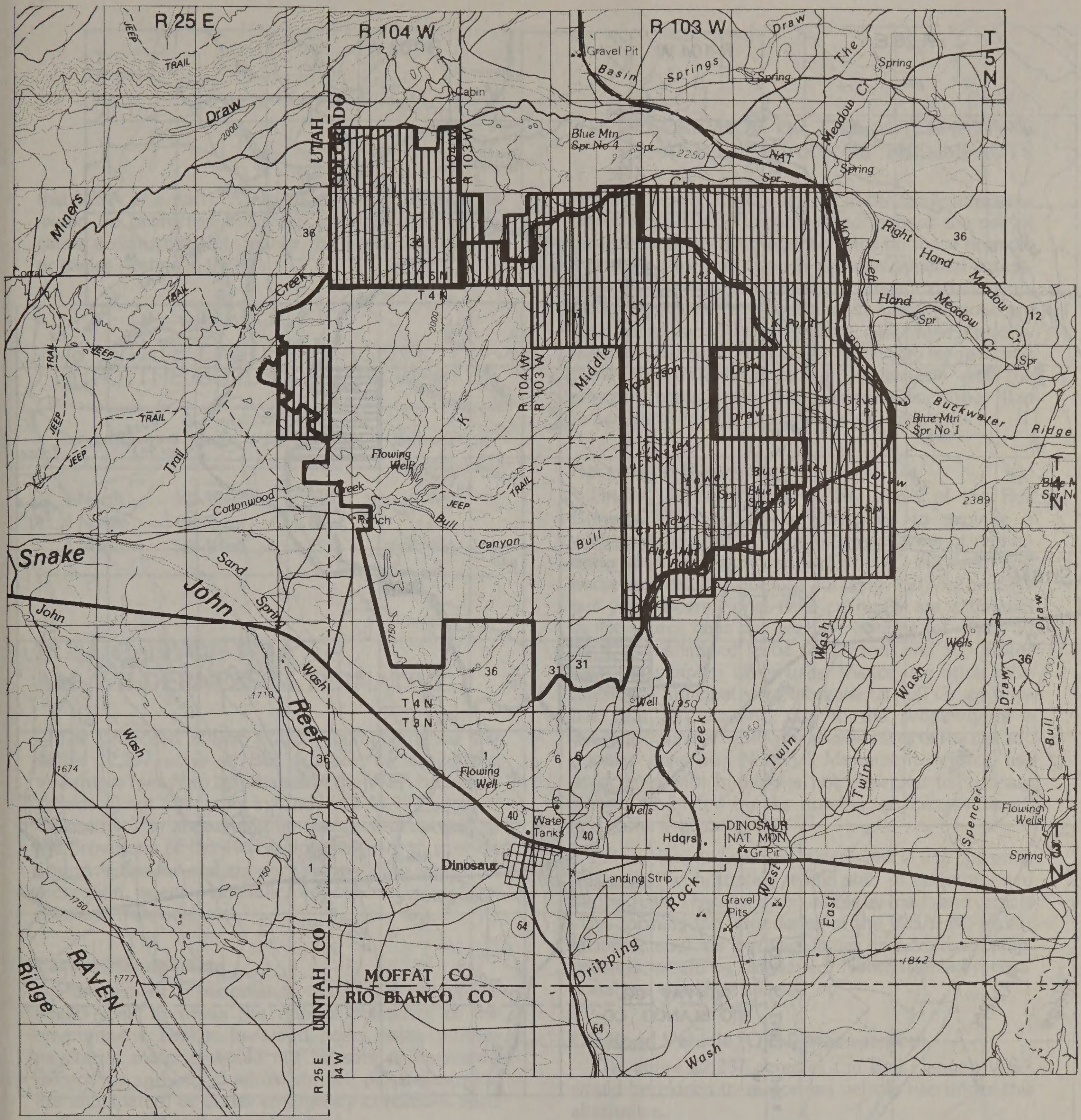
The BLM's Wilderness Management Policy (USDI, BLM, 1981) states:

> "Acquisition of non-federal lands within wilderness areas is authorized by purchase or exchange. When such lands are to be acquired, the BLM will seek to acquire mineral rights as well as the surface rights. Acquisition of privately-owned lands will occur only if the private owner concurs with the acquisition, or if the acquisition is specifically authorized by Congress to be accomplished by eminent domain."

The lands are listed in Table 2-1 and are shown on Map 2-4. If acquired, they would be managed in the same manner as the rest of the WSA.

Wildlife Management

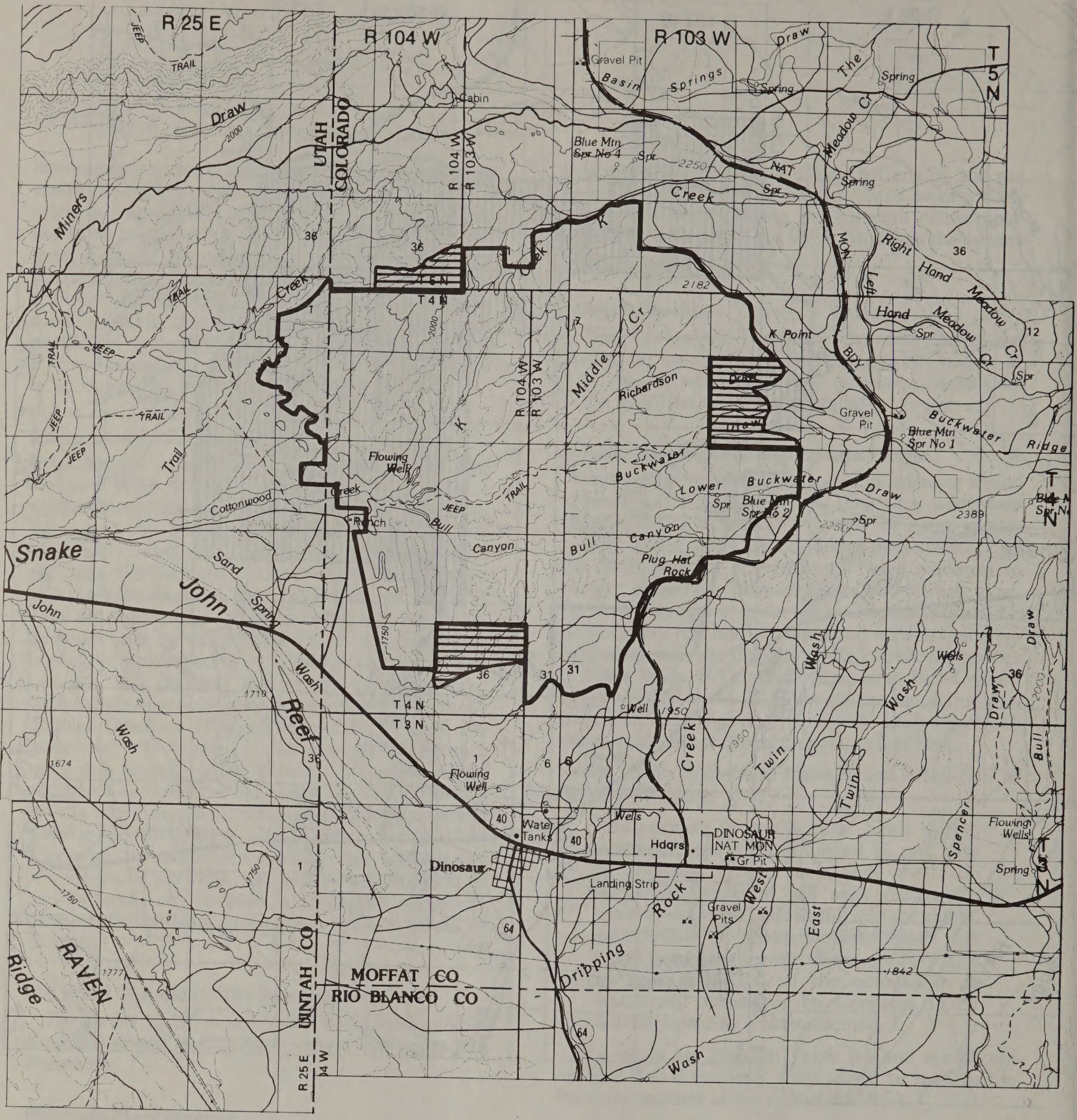
Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 170 animals using the WSA (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 10 animals using the WSA (400 elk habitat the Data Analysis Unit of which



BULL CANYON

Map 2-3. Bull Canyon - Post—FLPMA Oil and Gas Leases

Post FLPMA Leases ▥



BULL CANYON

Map 2-4. Bull Canyon - State Lands Considered for Acquisition

Lands Considered for Acquisiton ▤

this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

TABLE 2-1
STATE LANDS ADJACENT TO THE BULL CANYON WSA

Township	Range	Section	Subsection
4 North	103 West	16	W½
4 North	104 West	36	N½
5 North	104 West	36	S½

BULL CANYON WSA - ALL WILDERNESS ALTERNATIVE

The proposed action would recommend that the entire 12,297 acres in Bull Canyon be designated wilderness (see Map 2-5). Lands in the WSA boundary include about 520 acres in Utah and 11,777 acres in Colorado. The area would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Forest Management

Management of woodlands under this alternative would seek to retain the natural character of the environment. Timber, fuelwood, posts, poles or other vegetative material would not be sold or harvested except for authorized administrative purposes (none are anticipated) or under emergency conditions such as fire or insect and disease control.

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 826 AUMs per year. Maintenance on existing range improvements, which include two developed springs with watering troughs, three earthen stock ponds, and two and one-half miles of fence (see Map 2-2) would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981). Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. Maintenance on these projects would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out or reclaimed. Although none are anticipated under this alternative, new range improvements would be allowed only if necessary for resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, 12,297 acres of the Bull Canyon WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation, such as hiking, photography, hunting, and horseback travel with use totalling 850 visitor days per year. Recreational uses currently are estimated at 400 visitor days per year for hunting (of which 50 days are estimated to be motorized) and 300 visitor days per year for other uses. Visitor use other than hunting is anticipated to increase by 150 visitor days per year (50 percent) due to the proximity of a designated wilderness within seven miles of the already popular Dinosaur National Monument. Visitor use associated with hunting is not expected to increase since it is limited by the number of licenses issued and game availability.

Fifty visitor days of motorized vehicle use currently associated with hunting would shift to nonmotorized hunting use. The area is accessible by roads and vehicle ways forming the boundaries of the WSA. No visitor facilities, such as parking areas or primitive campgrounds, would be developed. Nonmotorized recreational use would be allowed.

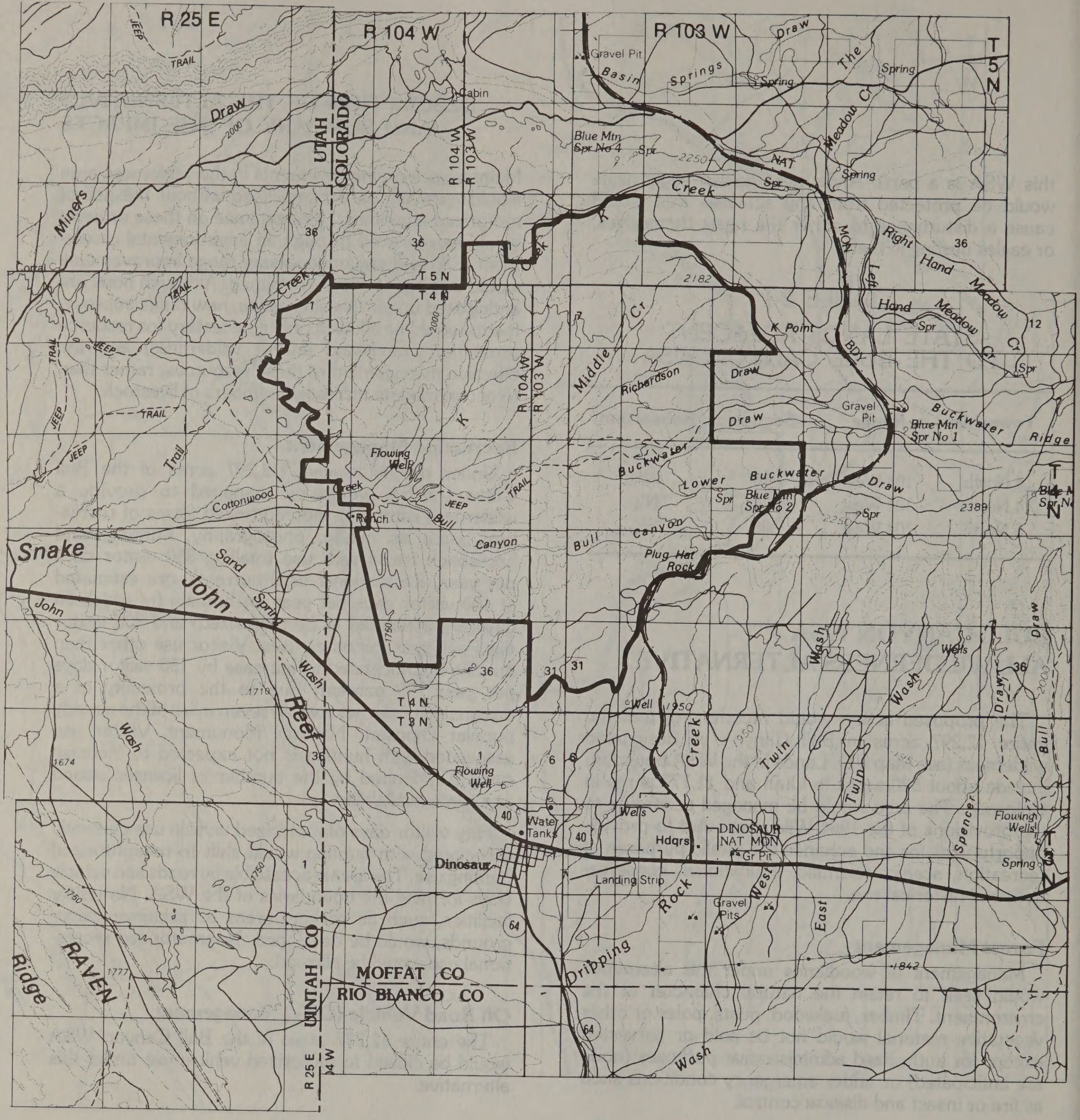
Off Road Vehicle (ORV) Management

The entire 12,297 acres of the Bull Canyon WSA would be closed to motorized vehicle use under this alternative.

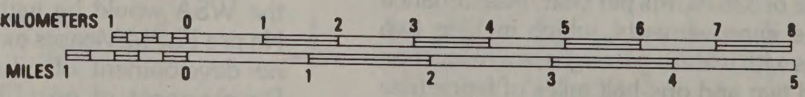
Minerals Management

Oil and Gas

The 12,297 acres of the federal mineral estate within the WSA would be withdrawn from further leasing. No pre-FLPMA leases exist within the WSA, therefore, no development of oil and gas would be allowed. Development of post-FLPMA (see Map 2-3) leases



BULL CANYON



Map 2-5. Bull Canyon - WSA Boundary

WSA Boundary ———

would be administratively allowed through means such as directional drilling. It is highly unlikely, however, because of local geologic conditions and the technical limitations of directional drilling, that any oil and gas resources which may be present could be effectively developed. Therefore, no development of the post-FLPMA leases within the WSA (including the private inholding) is anticipated.

Other Minerals

The WSA would be closed to mining claims and leasing on the federal mineral estate. No leasing or mining would occur. Currently no mining claims exist in the WSA nor are any anticipated.

Acquisition of State and Private Lands

State and private lands in Colorado, adjacent to and within the Bull Canyon WSA, may have wilderness characteristics based on a review of aerial photography. These lands are not under the jurisdiction of the BLM and are not currently being managed to protect wilderness characteristics which may exist. Because they are not under the jurisdiction of the BLM, no inventory has been initiated and no determination has been made regarding the wilderness characteristics of these lands. If Congress designates Bull Canyon WSA as wilderness, BLM would pursue acquisition of private inholdings and those state lands which still contain wilderness characteristics at that time.

The BLM's Wilderness Management Policy (USDI, BLM, 198l) states:

> "Acquisition of non-federal lands within wilderness areas is authorized by purchase or exchange. When such lands are to be acquired, the BLM will seek to acquire mineral rights as well as the surface rights. Acquisition of privately-owned lands will occur only if the private owner concurs with the acquisition, or if the acquisition is specifically authorized by Congress to be accomplished by eminent domain."

The lands are listed in Table 2-1 and are shown on Map 2-4. If acquired, they would be managed in the same manner as the rest of the WSA.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 170 animals using the WSA (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 10 animals using the WSA (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

BULL CANYON WSA - NO WILDERNESS ALTERNATIVE (NO ACTION)

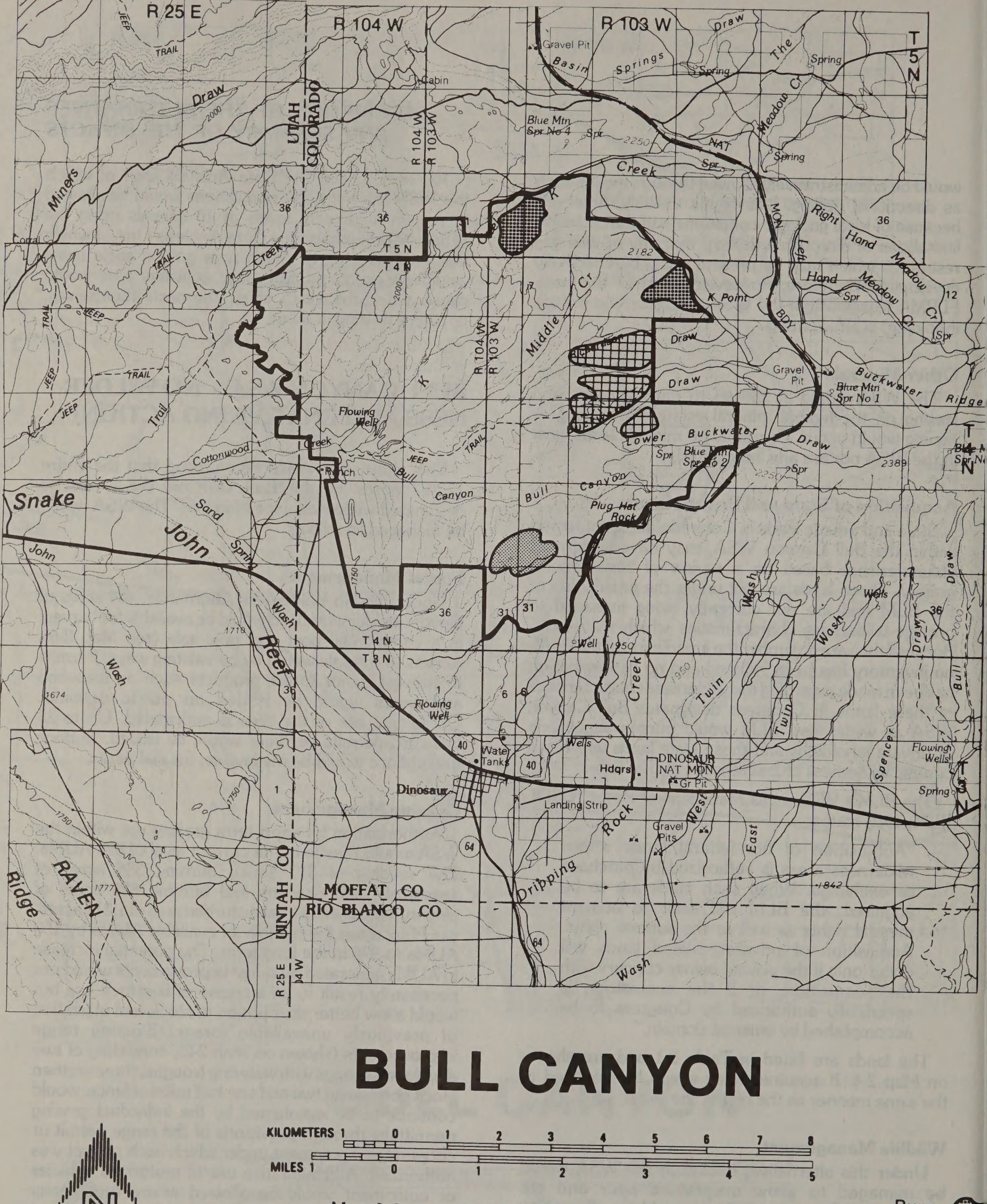
This alternative would recommend that the entire 12,297 acres of the Bull Canyon WSA not be designated wilderness (see Map 2-5). The WSA would be managed as follows.

Forest Management

Under the No Wilderness Alternative, 404 acres of pinyon/juniper woodland would be available for harvest in a commercial post and pole sale (see Map 2-6). Access to the sale would be by existing ways. Permits to harvest minor forest products such as fuelwood and posts would be issued on public demand. Occasional use of the area is anticipated. Up to 25 two-cord permits per year would be issued. Surface disturbance would be minimal on the 404 acres.

Grazing Management

Authorization for short-term grazing use within the WSA would remain at the current level of 826 AUMs. The seeding of 311 acres, burning 386 acres of sagebrush, and chaining and burning 826 acres of pinyon/juniper, for a total disturbed area of 1,212 acres, would increase the number of available AUMs by 150 AUMs to 976 in the long term. The potential increase in AUMs generated by range improvements would not necessarily result in an increase of livestock use but would allow better distribution of stock and utilization of previously unavailable forage. Existing range improvements (shown on Map 2-2), consisting of two developed springs with watering troughs, three earthen stock ponds, and two and one-half miles of fence, would continue to be maintained by the individual grazing permittees through provisions of the range permit or cooperative agreement under which each project was authorized. Administrative use of motorized vehicles or equipment would be allowed where topography permits. Fences and pipelines ordinarily require annual



BULL CANYON

Map 2-6. Bull Canyon - Proposed Activities

Burn
Burn and Chain
Post Cutting
Burn, Chain, Seeding

maintenance; water projects could require more frequent maintenance depending on the amount of precipitation and runoff. The projected range improvement projects (which have been assumed for analysis purposes) would be designed to improve livestock distribution are shown on Map 2-6.

Recreation Management

Under this alternative, 12,297 acres of the Bull Canyon WSA would be managed to provide a predominantly natural setting. Uses are currently estimated at 400 visitor days per year for hunting (50 of which are motorized) and 300 visitor days per year for other uses (total use is about 700 visitor days per year). Use levels are expected to remain the same if the area is not designated wilderness. Motorized visitor use would remain at the current estimated level of 50 visitor days per year for hunting. Access is available by roads and vehicle ways or trails forming the WSA boundary. No visitor facilities, such as parking areas or campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 12,297 acres of the Bull Canyon WSA would be open to motorized vehicle use under this alternative.

Minerals Management

Oil and Gas

All 12,297 acres of the WSA would be open for oil and gas leasing.

Portions of five post-Federal Land Policy and Management Act (FLPMA) oil and gas leases overlap the WSA (see Map 2-3). New leases would be issued. There are no pre-FLPMA leases in the WSA.

Reasonable foreseeable development would include only exploration and assumes that no producible oil and gas would be discovered in the WSA. One or two exploration wells would be drilled but would not be projected to find producible oil and gas. The two exploratory holes (wells) would be plugged and the roads and pads rehabilitated.

This would encompass about 11 acres of disturbance including two miles of road (see Map 2-7). The location of the wells in this scenario have been assumed only for the purposes of analysis. They are representative of exploration and surface disturbance that might reasonably occur. Actual locations may differ from those shown on Map 2-7. Subsurface geologic knowledge of the area would be enhanced but no new reserves discovered.

Other Minerals

The U.S. Geological Survey/Bureau of Mines study of the WSA completed in 1987 showed some potential for sand from the Glen Canyon Sandstone which is usable as fracturing or foundry sand. The report pointed out that there were numerous sources closer to markets and transportation over all northwest and west-central Colorado and "thus is readily available closer to prospective markets" (Soulliere, 1987). For these reasons, no development of sand or other minerals is anticipated in the WSA. No leasable or locatable minerals other than Glen Canyon Sandstone have been identified either by study or claim.

Acquisition of State and Private Lands

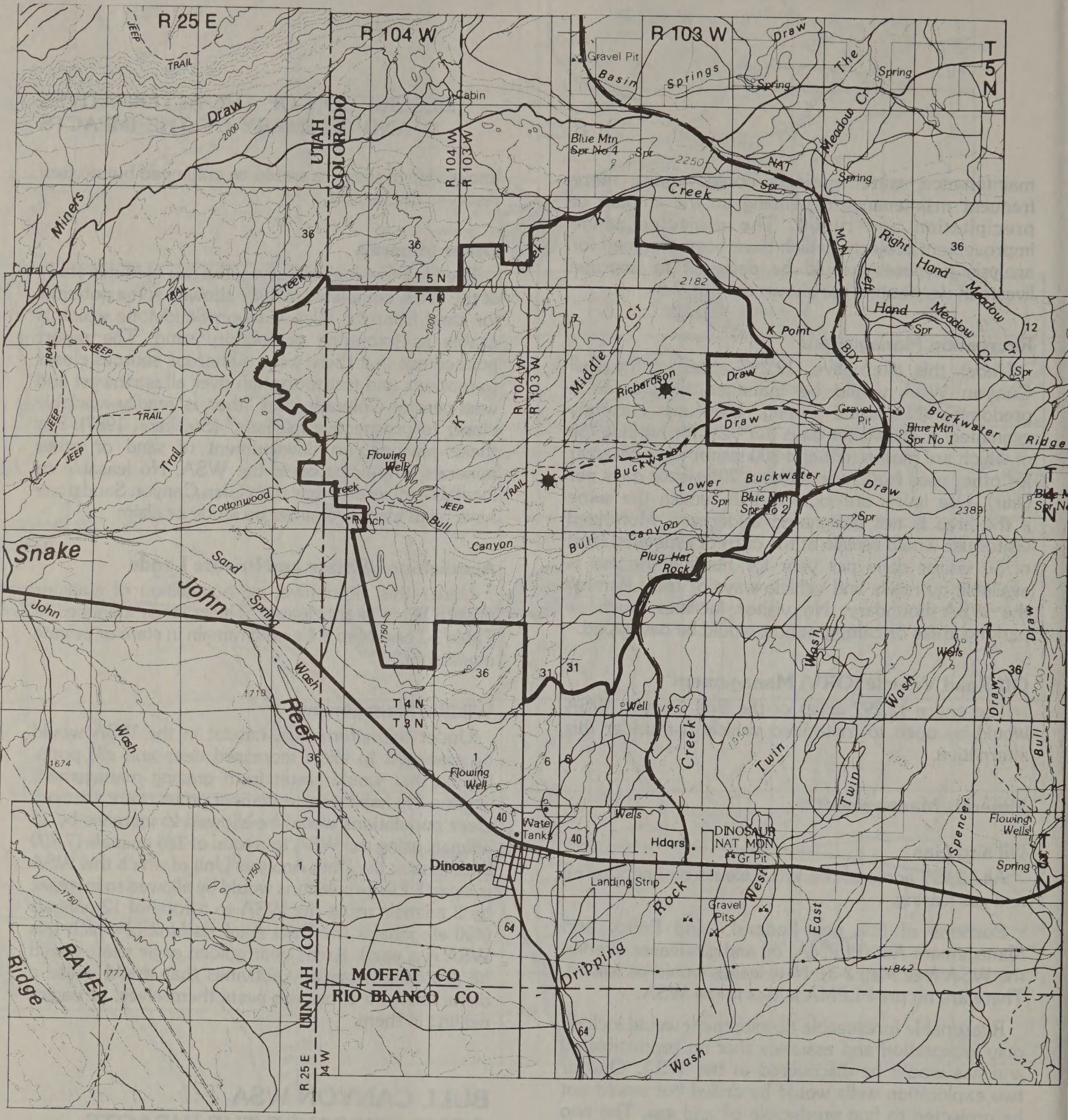
Under this alternative, no acquisition of state or private lands is anticipated. These lands identified in Table 2-1 and Map 2-4 would remain in state or private ownership.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow increased deer and elk populations that would result from grazing management actions. No habitat improvement projects are planned. Deer populations would be allowed to increase by 15 animals using the WSA to a total of 185 animals (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to increase by 2 animals using the WSA to a total of 12 animals (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

BULL CANYON WSA - COMPARISON OF THE IMPACTS OF THE ALTERNATIVES

A comparison of the impacts of the alternatives is presented in Table 2-2. This is a summary drawn from the conclusions presented in Chapter 4 - Environmental Consequences.



BULL CANYON

Map 2-7 Bull Canyon - Oil and Gas Exploration Scenario

Road — — —
Drill Pad ✱

TABLE 2-2
Bull Canyon - Comparison of the Impacts of the Alternatives

Issues	Boundary Adjustment Alternative (Proposed Action)	All Wilderness Alternative	No Wilderness Alternative (No Action)
Wilderness Characteristics	Opportunities for solitude, primitive, and unconfined recreation,high scenic quality and the naturalness of the area would be protected on 12,290 acres under the Boundary Adjustment Alternative.	Opportunities for solitude, primitive, and unconfined recreation,high scenic quality and the naturalness of the area would be protected on 12,297 acres under the All Wilderness Alternative.	Under the No Wilderness Alternative, the wilderness characteristics of solitude and naturalness would be lost from a minimum of two-thirds of the WSA through the cumulative effects of projected activities.
Ranching Operations	Livestock forage production within the Bull Canyon WSA would remain at current levels of 826 AUMs under this alternative. Operating costs on grazing allotments within the WSA would be slightly higher where livestock operations could be accomplished reasonably without the use of vehicles.	Livestock forage production within the Bull Canyon WSA would remain at current levels of 826 AUMs under this alternative. Operating costs on grazing allotments within the WSA would be slightly higher where livestock operations could be accomplished reasonably without the use of vehicles.	Livestock forage production under this alternative would increase by about 18 percent or 150 AUMs. Operating costs associated with range improvement projects would remain at current levels because motor vehicle use would be allowed.
Recreation Use and Quality	Recreation use levels in the proposed wilderness area are expected to increase from 700 visitor days to 850 visitor days per year as a result of designation. Opportunities for primitive and unconfined recreation would remain unchanged in a natural setting.	Recreation use levels in the proposed wilderness area are expected to increase from 700 visitor days to 850 visitor days per year as a result of designation. Opportunities for primitive and unconfined recreation would remain unchanged in a natural setting.	Recreation use of about 700 visitor days per year would remain at current levels. Primitive recreation opportunities would be degraded by the development of other resources, although the setting would be predominantly natural.
Water Quality	Since no surface-disturbing activities would occur under the proposed action, there would be no change or impact to water quality.	Since no surface-disturbing activities would occur under the proposed action, there would be no change or impact to water quality.	There would be an increase in sediment yield of up to 20 percent from the WSA in the short term, although there would probably be a long-term decrease of about 3 percent. The change in salts would be about half that of sediment. This would be an immeasurably small short-term contribution to, or long-term decrease, in sediments and salts in the White River. The long-term changes are well within the natural variation of up to 25 percent.
Big Game Species (Populations and Habitat) and Eagles	Wildlife habitat would remain in present condition. Animal numbers of 170 deer, 10 elk, and 2 pair of golden eagles would remain unchanged.	Wildlife habitat would remain in present conditions. Animal numbers for 170 deer, 10 elk, and 2 pair of golden eagles would remain unchanged.	There would be an increase of about 15 deer (to a total of 185) and 2 elk (to a total of 12) currently using the WSA. No impacts to golden eagles or other raptors are anticipated because they would be protected.
Mineral Exploration and Production	The area (12,290 acres) would be closed to mineral entry. The low potential for exploration and development of oil and gas would be precluded. No subsurface geologic data would be gained.	The area (12,297 acres) would be closed to mineral entry. The low potential for exploration and development of oil and gas would be precluded. No subsurface geologic data would be gained.	The area (12,297 acres) would be open to leasing, exploration, and development; geologic knowledge of the area would be increased. The low potential of the WSA for oil and gas exploration could be realized. No production or development is projected, however.
Private Lands	The 320 acres of private land would be proposed for acquisition but current grazing use of the land would continue.	The 320 acres of private land would be proposed for acquisition but current grazing use of the land would continue.	No impact or change in ownership of the 320 acres is anticipated. Grazing use of the land would continue.

WILLOW CREEK/SKULL CREEK WILDERNESS STUDY AREA ALTERNATIVES

WILLOW CREEK WSA - ALL WILDERNESS ALTERNATIVE (PROPOSED ACTION)

This alternative would recommend that the entire 13,368 acres of the Willow Creek WSA be designated wilderness (see Map 2-8). The wilderness would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 812 AUMs per year. Maintenance on existing range improvements, which include one abandoned check dam on Plug Hat Creek, four developed springs with watering troughs, one and one-quarter miles of fence, and one mile of water pipeline (see Map 2-9), would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981). Maintenance on the projects would be reviewed through an environmental assessment and any unnecessary range improvements would be phased out and removed. The EA would specify the construction methods and types of materials suitable for existing improvements.

Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicle use do not exist, exceptions to this policy could be approved. Although none are anticipated under this alternative, new range improvements would be permissible only if determined to be necessary for the purpose of resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, 13,368 acres of the Willow Creek WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation with use totalling 850 visitor days per year. Access to the area is available by way of a system of roads and vehicle ways forming the boundaries of the WSA. No visitor facilities, such as parking areas or primitive campgrounds, would be developed. Nonmotorized forms of recreation use, such as hiking, photography, and horse travel, would increase by 150 visitor days over the current estimated rate of 300 visitor days per year. Hunting use, currently estimated at 400 visitor days per year (of which 50 are motorized), would remain the same since it is limited by the number of licenses issued and game availability. Fifty visitor days of motorized vehicle use currently associated with hunting would shift to nonmotorized hunting use.

Off Road Vehicle (ORV) Management

The entire 13,368 acres of the Willow Creek WSA would be closed to motorized vehicle use under this alternative.

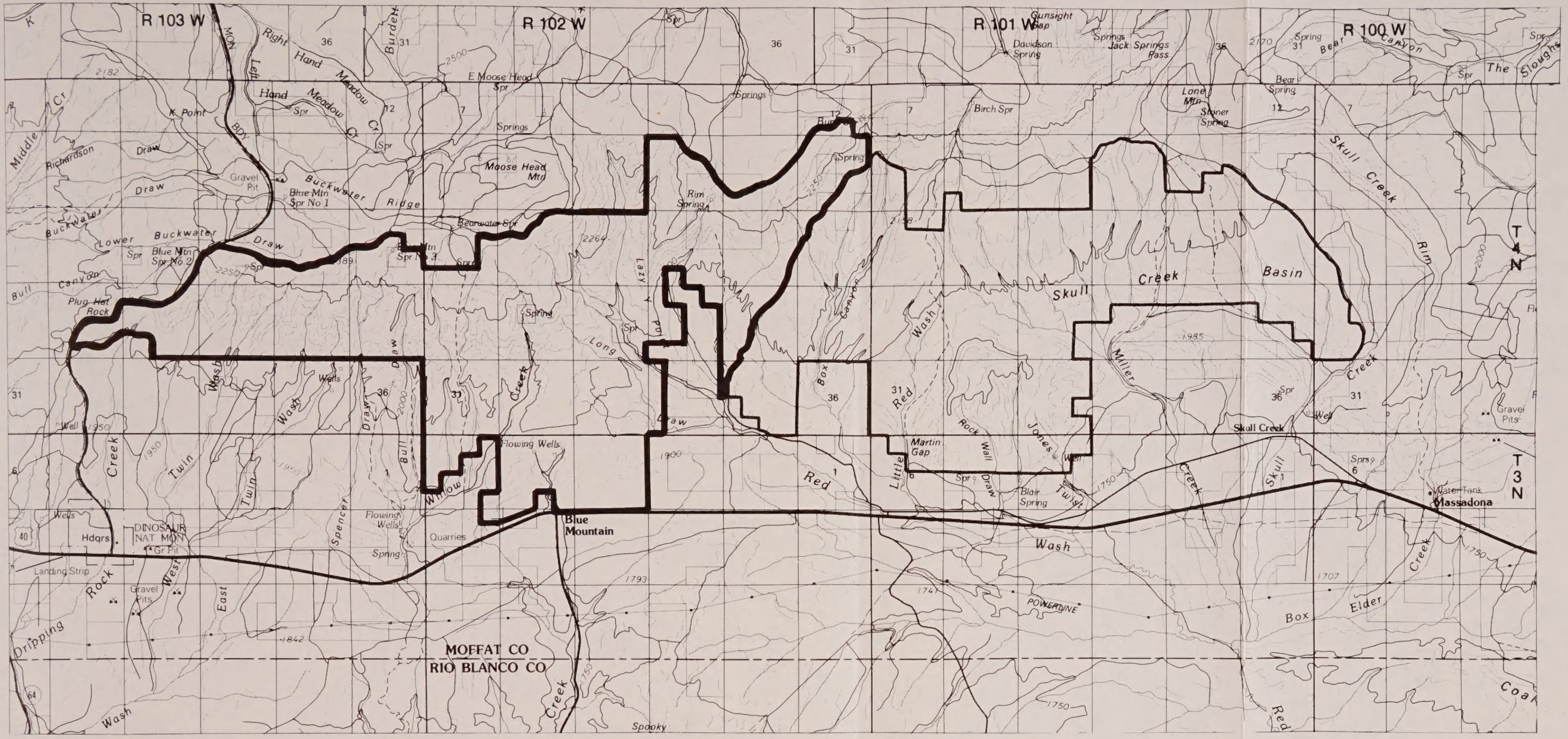
Minerals Management

Oil and Gas

The All Wilderness Alternative for Willow Creek would withdraw 13,274 acres of federal mineral estate from further leasing. The WSA has 94 acres of private mineral estate which would be open to exploration and development as determined by the owner until the proposed BLM acquisition (see Map 2-10). The 13,274 acres of federal mineral estate have no pre-FLPMA leases, therefore no development of oil and gas would be allowed. Development of post-FLPMA leases would be administratively allowed through means such as directional drilling. Because of local geologic conditions and the technical limitations of directional drilling, it is unlikely that any oil and gas resources which may be present could effectively be developed. Therefore, no development of the post-FLPMA leases within the WSA is anticipated. The post-FLPMA leases within the Willow Creek WSA are shown on Map 2-11.

Other Minerals

The WSA would be closed to mining claims and leasing on the federal mineral estate. No leasing or mining would occur with the possible exception of the 94 acres of private minerals (until BLM acquisition). Currently no mining claims exist on the WSA nor are any anticipated.



WILLOW/SKULL CREEK

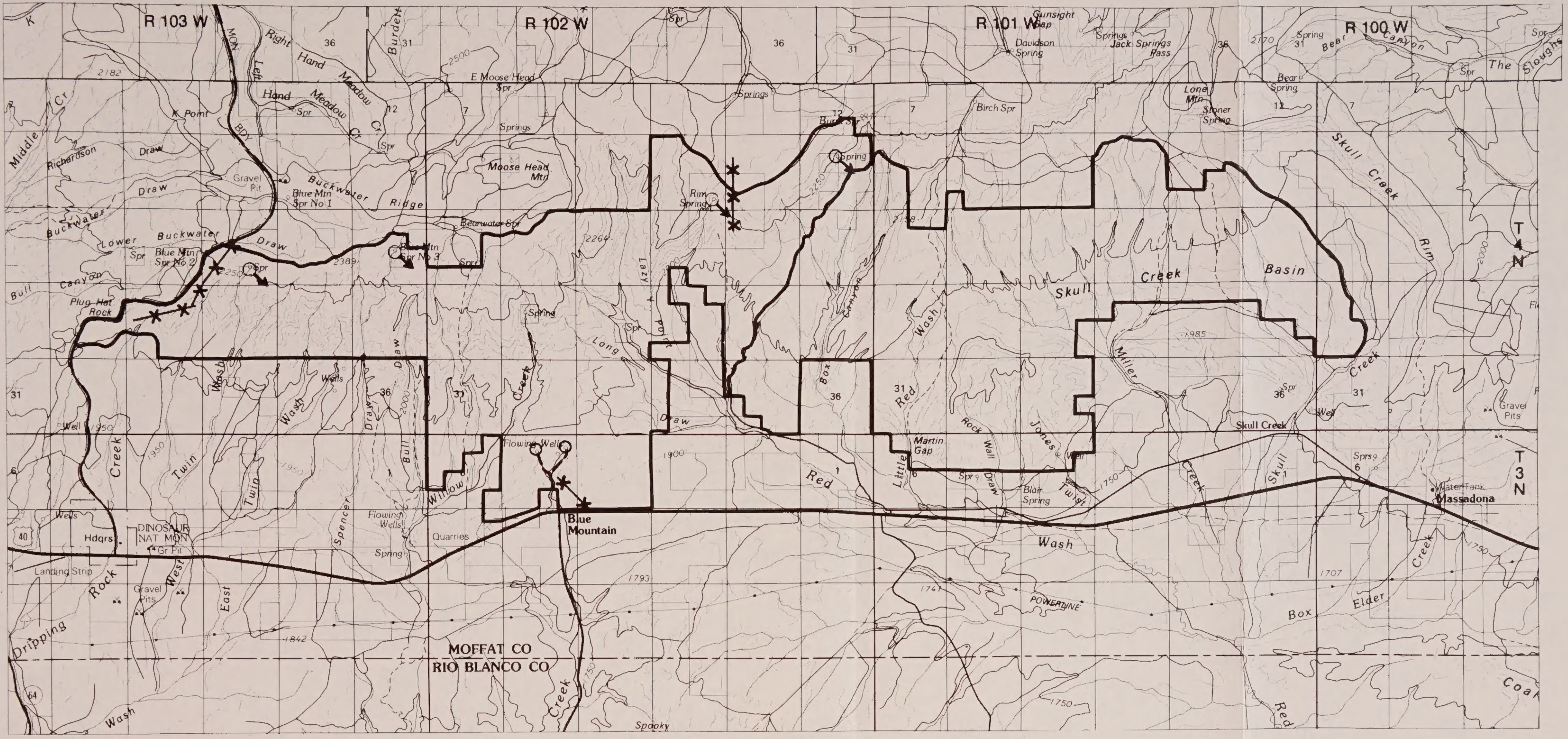
KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

N

Map 2-8. Willow Creek WSA

WSA Boundary

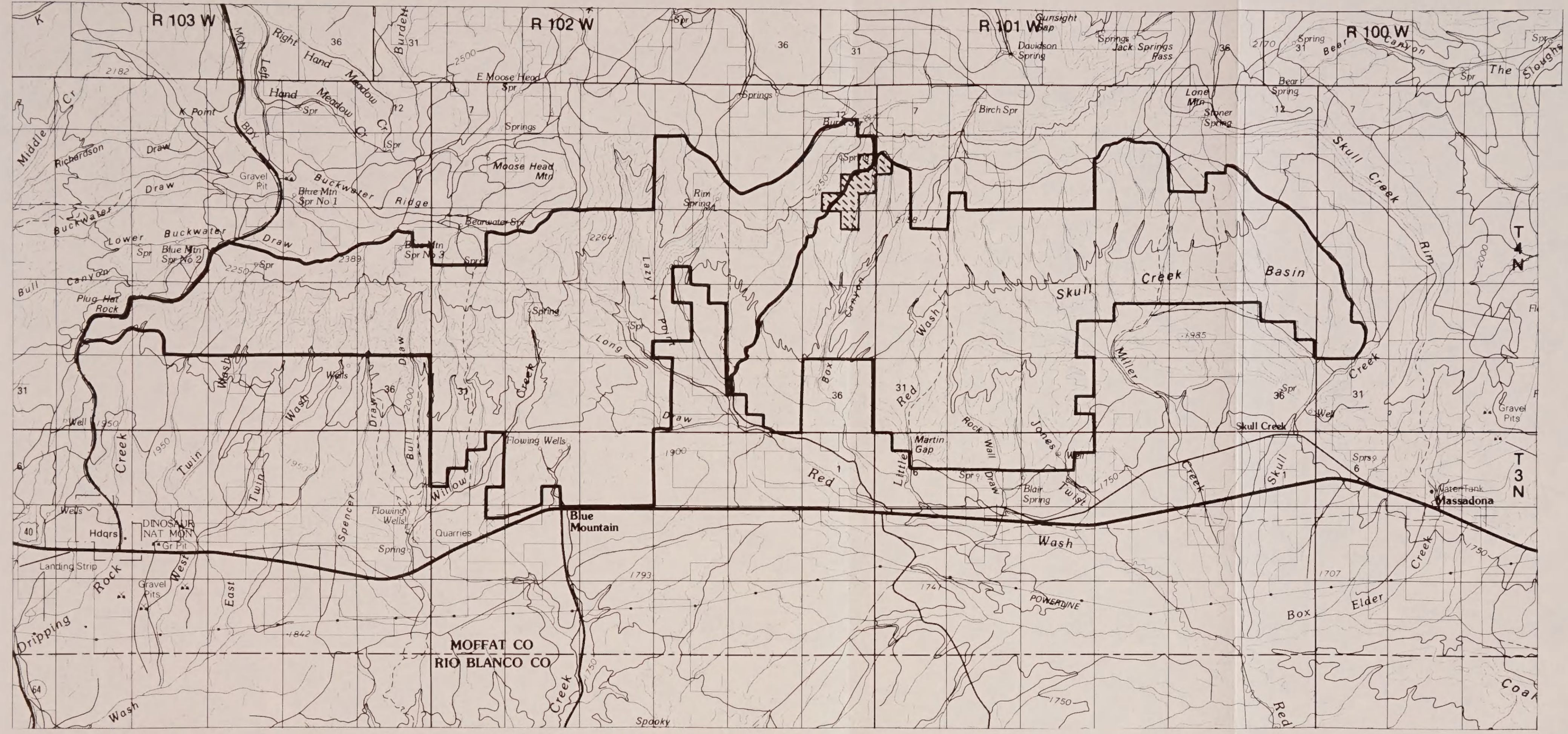


WILLOW/SKULL CREEK

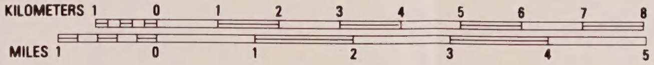
Map 2-9. Willow Creek/Skull Creek

Existing Range Improvements

Fence ✗✗✗
Developed Spring ○➜
Pipeline R/W — — —○

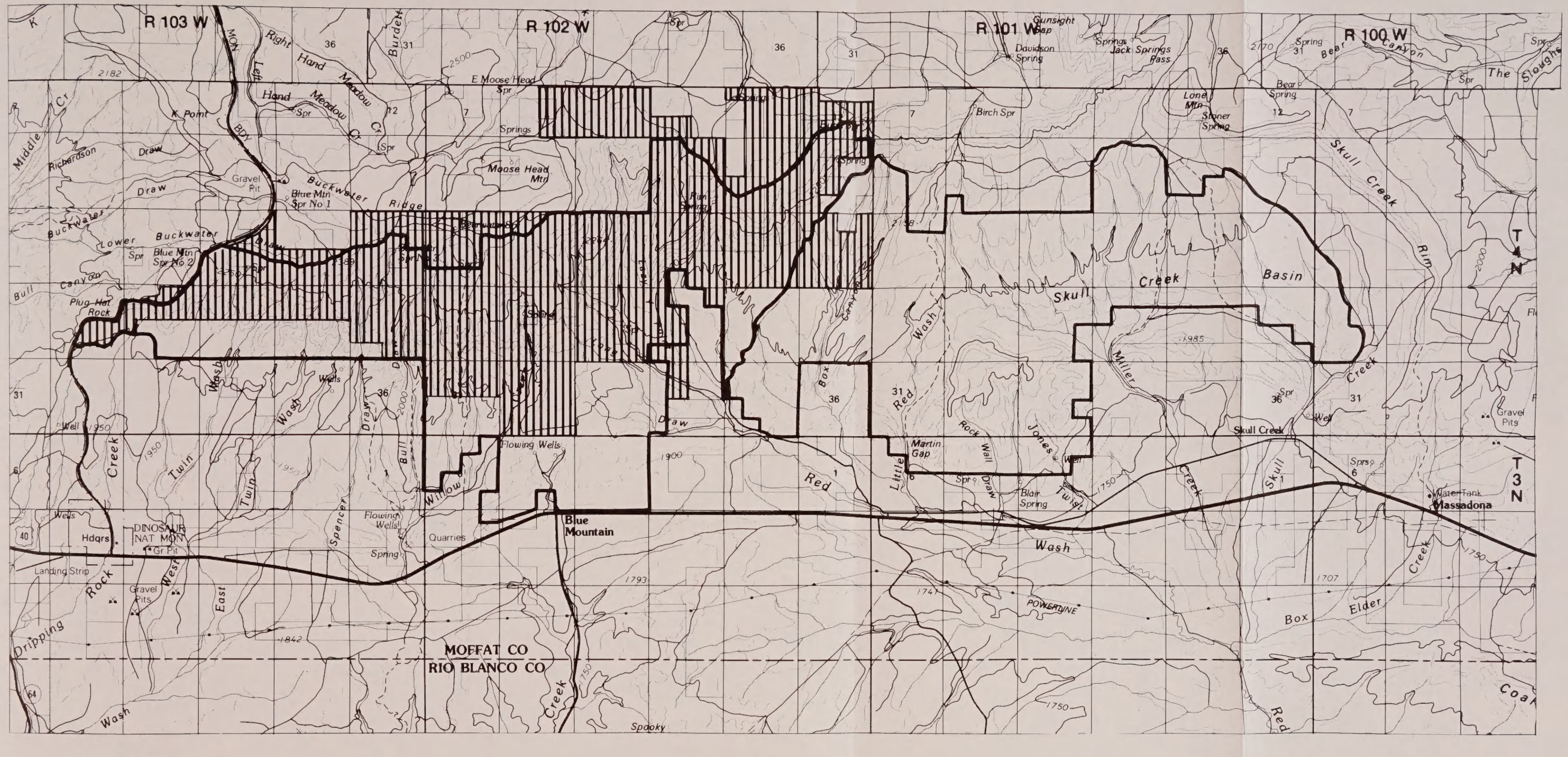


WILLOW/SKULL CREEK



Map 2-10. Willow Creek/Skull Creek Private Mineral Estate

Private Mineral Estate ▨



WILLOW/SKULL CREEK

Map 2-11. Willow Creek Post-FLPMA Oil and Gas Leases

Oil and Gas Leases ▥

Acquisition of State and Private Lands

Acquisition of state lands under this alternative would be limited to those adjoining lands still possessing wilderness qualities at the time of designation. These lands are not under the jurisdiction of the BLM and are not currently being managed to protect wilderness qualities which may exist. If Congress designates the Willow Creek WSA as wilderness, BLM would seek to acquire those parts of Section 16, Township 4 North, Range 102 West (see Map 2-12) which are found to contain wilderness characteristics. BLM would also seek to acquire 94 acres of private mineral estate in the northeast portion of the unit in Section 13, Township 4 North, Range 102 West.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 190 animals using the WSA (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 50 animals using the WSA (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

WILLOW CREEK WSA - NO WILDERNESS ALTERNATIVE (NO ACTION)

This alternative would recommend that the entire 13,368 acres of the Willow Creek WSA not be designated wilderness (see Map 2-8). The WSA would be managed as described in the following sections.

Grazing Management

Authorization for short-term grazing use within the WSA would remain at the current level of 812 AUMs. No new range improvement projects are proposed under this alternative. Existing range improvements, consisting of four developed springs with watering troughs, one and one-fourth miles of fence, and one mile of water pipeline, would continue to receive maintenance by the individual grazing permittee through provisions of the grazing permit or cooperative agreement under which each project was authorized. Use of motorized vehicles or equipment would be allowed where topography permits.

Recreation Management

Under this alternative, 13,368 acres of the Willow Creek WSA would be managed to provide a predominantly natural setting with use continuing at 700 visitor days per year. Use levels are currently estimated at 300 visitor days per year for uses such as hiking, photography, and horseback riding. Hunting use is estimated at 400 visitor days per year which includes about 50 visitor days of off-road vehicle use. Hunting use would continue at 400 visitor days per year; however, a shift toward motorized hunting use from nonmotorized hunting use is expected. Motorized hunting use would increase from present levels of 50 to about 75 visitor days per year. Uses other than hunting are expected to remain at 300 visitor days per year if the area is not designated wilderness. Access to the area is available by a system of roads and vehicle ways forming the northern and eastern boundaries of the WSA. No visitor facilities, such as parking areas or campgrounds, would be developed.

Off Road Vehicle (ORV) Management

Under this alternative, future ORV designations are anticipated to limit ORV use to designated roads and trails in the WSA.

Mineral Management

Oil and Gas

The 13,274 acres of federal mineral estate would be offered for oil and gas leasing in the WSA. The 94 acres of private mineral estate would remain under the control of the owner.

Reasonable foreseeable development would include only exploration and assumes that no producible oil and gas would be discovered in the WSA. One or two exploration wells would be drilled but would not be projected to find producible oil and gas. The two exploratory holes (wells) would be plugged and the roads and pads rehabilitated. This would encompass about 11 acres of disturbance including two miles of road (see Map 2-13). Subsurface geologic knowledge of the area would be enhanced but no new reserves discovered.

Other Minerals

The 13,274 acres of federal mineral estate within Willow Creek WSA would be left open to mineral entry and leasing. A number of minerals such as copper, uranium and vanadium have been identified in the eastern end of the WSA in the Curtis Formation. The same minerals and formation have been mined south of Skull Creek WSA (see Affected Environment). Given the length of time the resources have been identified, and the lack of claims and mining activity, it is unlikely mining would occur within the Willow Creek WSA.

Acquisition of State and Private Lands

Under this alternative, no acquisition of state or private land is anticipated. These lands would remain in nonfederal ownership.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 190 animals using the WSA (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 50 animals using the WSA (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

SKULL CREEK WILDERNESS STUDY AREA ALTERNATIVES

SKULL CREEK WSA - ALL WILDERNESS ALTERNATIVE (PROPOSED ACTION)

This alternative would recommend that 13,740 acres of the Skull Creek WSA be designated wilderness (see Map 2-14). The wilderness would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 527 AUMs per year. There are no existing range improvement projects (including fences) in the WSA and no new projects are anticipated under this alternative. Therefore, vehicle use for range improvement maintenance would not be necessary.

Recreation Management

Under this alternative, 13,740 acres of the Skull Creek WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation with use totalling 850 visitor days per year. Nonmotorized recreation uses, such as hiking, photography, and horseback riding would increase by about 150 visitor days over the current estimated rate of 300 visitor days per year (to total 450 visitor days per year). Hunting use, currently estimated at 400 visitor days per year (of which 50 are motorized), would remain the same since it is limited by the number of licenses issued and game availability. The 50 visitor days of motorized vehicle use currently associated with hunting would shift to nonmotorized hunting use. Access to the area is by way of a system of roads and vehicle ways forming the western, northern, and eastern boundaries of the WSA. No visitor facilities, such as parking areas or primitive campgrounds, would be developed.

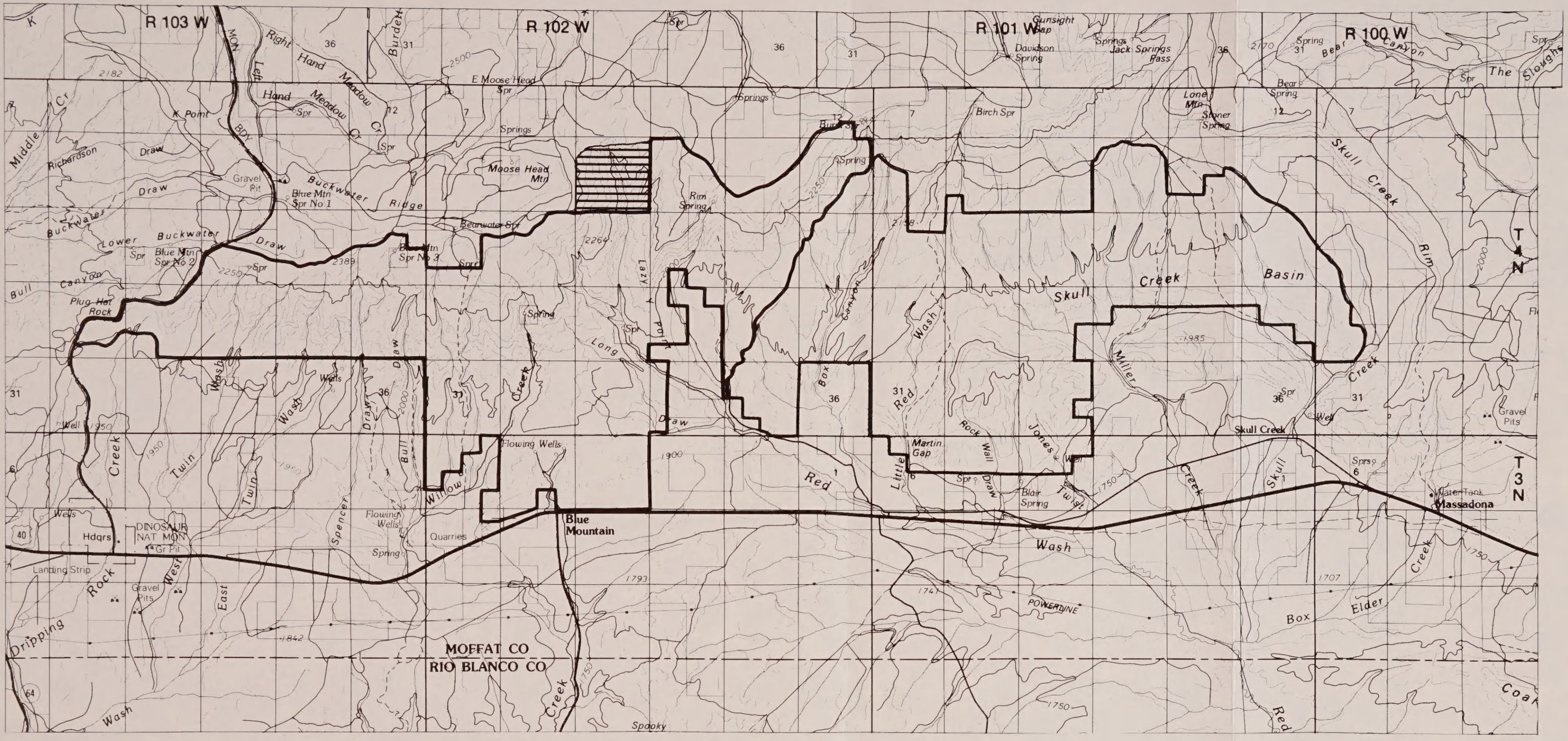
Off Road Vehicle (ORV) Management

The entire 13,554 acres of the Skull Creek WSA would be closed to motorized vehicle use under this alternative.

Minerals Management

Oil and Gas

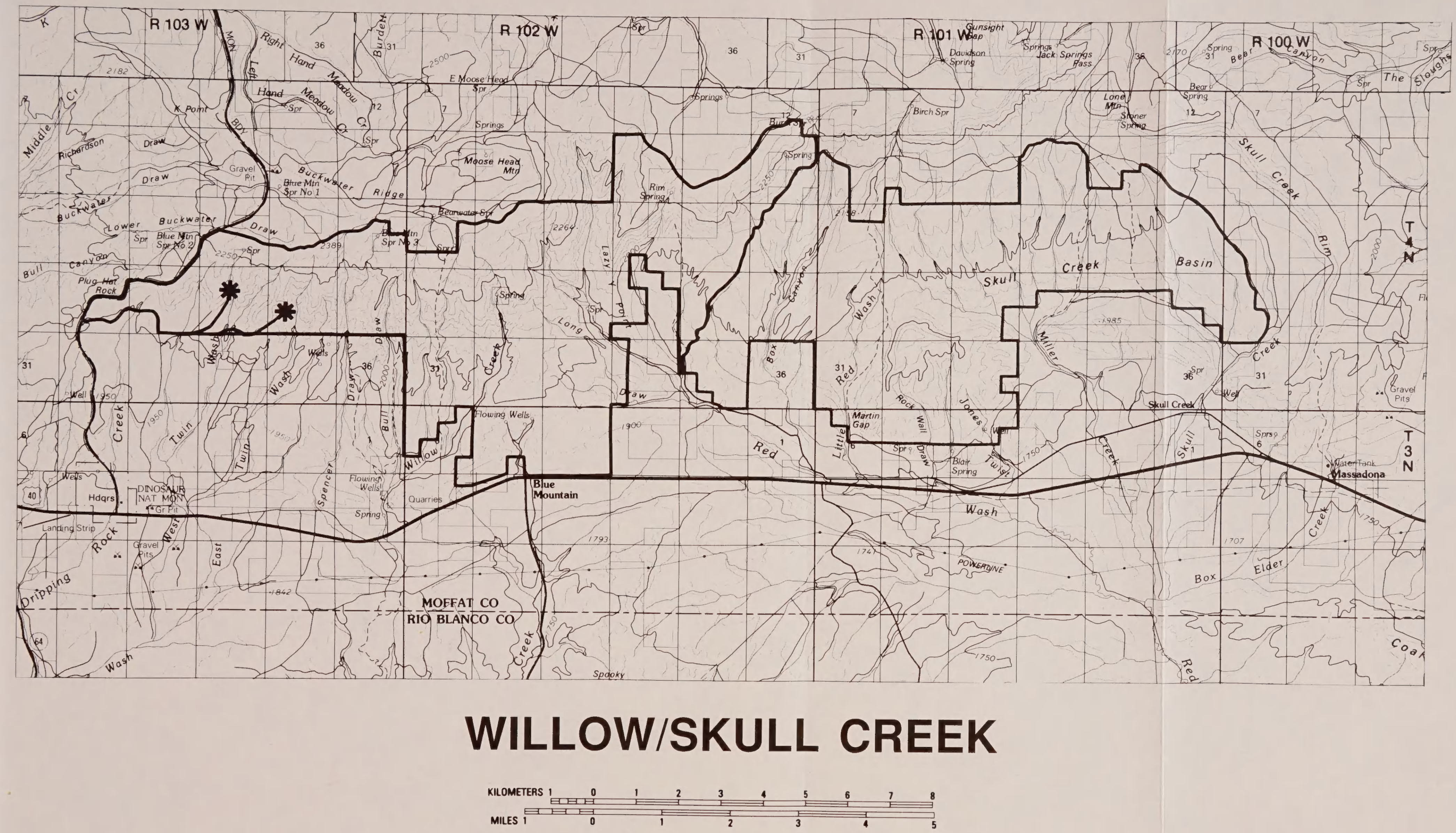
The All Wilderness Alternative for Skull Creek would withdraw 13,554 acres of federal mineral estate from further leasing. The WSA has 186 acres of private mineral estate which would be open to exploration and development as determined by the owner until BLM acquisition (see Map 2-10). No pre-FLPMA leases exist within the WSA. Therefore, no development of oil and gas would be allowed. Development of post-FLPMA leases would be administratively allowed through means such as directional drilling. Because of local geologic conditions and the technical limitations of directional drilling, it is highly unlikely that any oil and gas resources which may be present could effectively be developed. Therefore, no development



WILLOW/SKULL CREEK

Map 2-12. Willow Creek-State Lands Considered for Acquisition

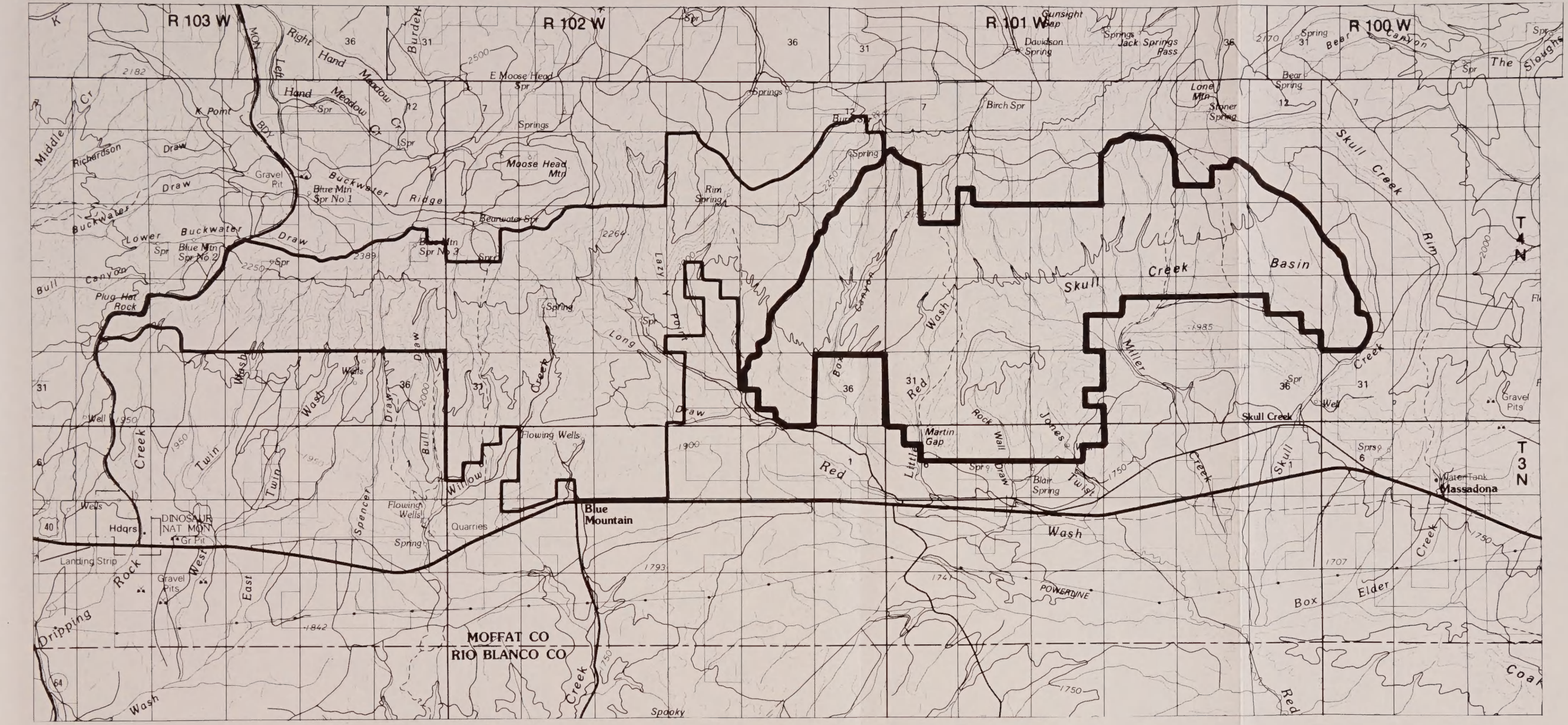
Acquistion Land ▤



Map 2-13. Willow Creek-Oil and Gas Exploration Scenario

Road —

Drill Pad ✱



WILLOW/SKULL CREEK

Map 2-14. Skull Creek WSA

WSA Boundary ▬

of the post-FLPMA leases within the WSA is anticipated. Post-FLPMA leases for the Skull Creek WSA are shown on Map 2-15.

Other Minerals

The WSA would be closed to mining claims and leasing on the federal mineral estate. No mining or leasing would occur with the possible exception of the 186 acres of private minerals. Currently no mining claims exist in the WSA nor are any anticipated.

Acquisition of State and Private Lands

Acquisition of state lands under this alternative would be limited to those adjoining lands which possess wilderness qualities at the time of designation. These lands are not under the jurisdiction of the BLM and are not currently being managed to protect wilderness qualities which may exist. If Congress designates the Skull Creek WSA as wilderness, BLM would seek to acquire those parts of Sections 16 and 36, Township 4 North, Range 102 West and Section 16, Township 4 North, Range 101 West (see Map 2-16) which are found to contain wilderness characteristics. BLM would also seek to acquire 186 acres of split estate (federal surface, private minerals) in Sections 13 and 24, Township 4 North, Range 102 West and Section 18, Township 4 North, Range 101 West.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 190 animals using the WSA (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 10 animals using the WSA (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

SKULL CREEK WSA - NO WILDERNESS ALTERNATIVE (NO ACTION)

This alternative would recommend that the entire 13,740 acres of the Skull Creek WSA (see Map 2-14) not be designated wilderness. The WSA would be managed as described in the following sections.

Grazing Management

Authorization for short-term grazing use within the WSA would remain at the current level of 527 AUMs. Range improvement projects, such as chaining, burning and seeding 1,880 acres to grass, could raise the number of AUMs to 656 in the long term. The potential increase in AUMs generated by range improvements would not necessarily result in an increase of livestock use but would allow better distribution of stock and utilization of previously unavailable forage. There are no existing range improvements on the WSA. Use of motorized vehicles or equipment would be allowed where topography permits. New range improvement projects tentatively identified under this alternative are shown on Map 2-17.

Recreation Management

Under this alternative, 13,740 acres of the Skull Creek WSA would be managed to provide a predominantly natural setting with use continuing at 700 visitor days per year. Use levels are currently estimated at 300 visitor days per year for uses such as hiking, photography, and horseback riding. Hunting use is estimated at 400 visitor days per year which includes about 50 visitor days of off-road vehicle use. Hunting use would continue at 400 visitor days per year, however a shift toward motorized hunting use from nonmotorized hunting use is expected. Motorized hunting use would increase from present levels of 50 to about 75 visitor days per year. Uses other than hunting are expected to remain at 300 visitor days per year if the area is not designated wilderness. Access to the area is available by a system of roads and vehicle ways forming the northern, western, and eastern boundaries of the WSA. No visitor facilities, such as parking areas or campground, would be developed.

Off Road Vehicle (ORV) Management

Under this alternative, future ORV designations are anticipated to limit ORV use to designated roads and trails in the WSA.

Mineral Management

Oil and Gas

The 13,554 acres of federal mineral estate would be offered for oil and gas leasing in the WSA. The

186 acres of private mineral estate would remain under the control of the owner. Reasonable foreseeable development would include only exploration and assumes that no producible oil and gas would be discovered in the WSA. One or two exploration wells would be drilled but would not be projected to find producible oil and gas. The two exploratory holes (wells) would be plugged and the roads and pads rehabilitated. This would encompass about 11 acres including two miles of road (see Map 2-18). Subsurface geologic knowledge of the area would be enhanced but no new reserves discovered. The location of the wells in this scenario have been assumed only for analysis purposes. They are representative of exploration and surface disturbance that might reasonably occur. Actual locations may differ from those shown on Map 2-18.

Other Minerals

The 13,554 acres of federal mineral estate within Skull Creek WSA would be left open to mineral entry and leasing. A number of minerals such as copper, uranium, and vanadium have been identified in Skull Creek WSA in the Curtis Formation. The same minerals and formation have been mined south of Skull Creek WSA (see Affected Environment). Given the length of time the resources have been identified and the lack of claims and mining activity, it is unlikely mining will occur within the Skull Creek WSA within the foreseeable future.

Acquisition of State and Private Lands

Under this alternative, no acquisition of state or private land is anticipated. All adjoining state or private lands would remain in nonfederal ownership.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow increased deer and elk populations that would result from grazing management actions. No habitat improvement projects are planned. Deer populations would be allowed to increase by 7 animals using the WSA to a total of 197 animals (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to increase by 2 animals using the WSA to a total of 12 animals (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves or eagles nesting in them.

JOINT WILLOW CREEK/SKULL CREEK WSA ALTERNATIVES

The following alternatives for the adjacent Willow Creek and Skull Creek WSAs have been grouped in this discussion because of their proximity and because they are separated by a primitive road that is no longer passable and on which natural revegetation is occurring. A combination of the areas can, therefore, reasonably be considered.

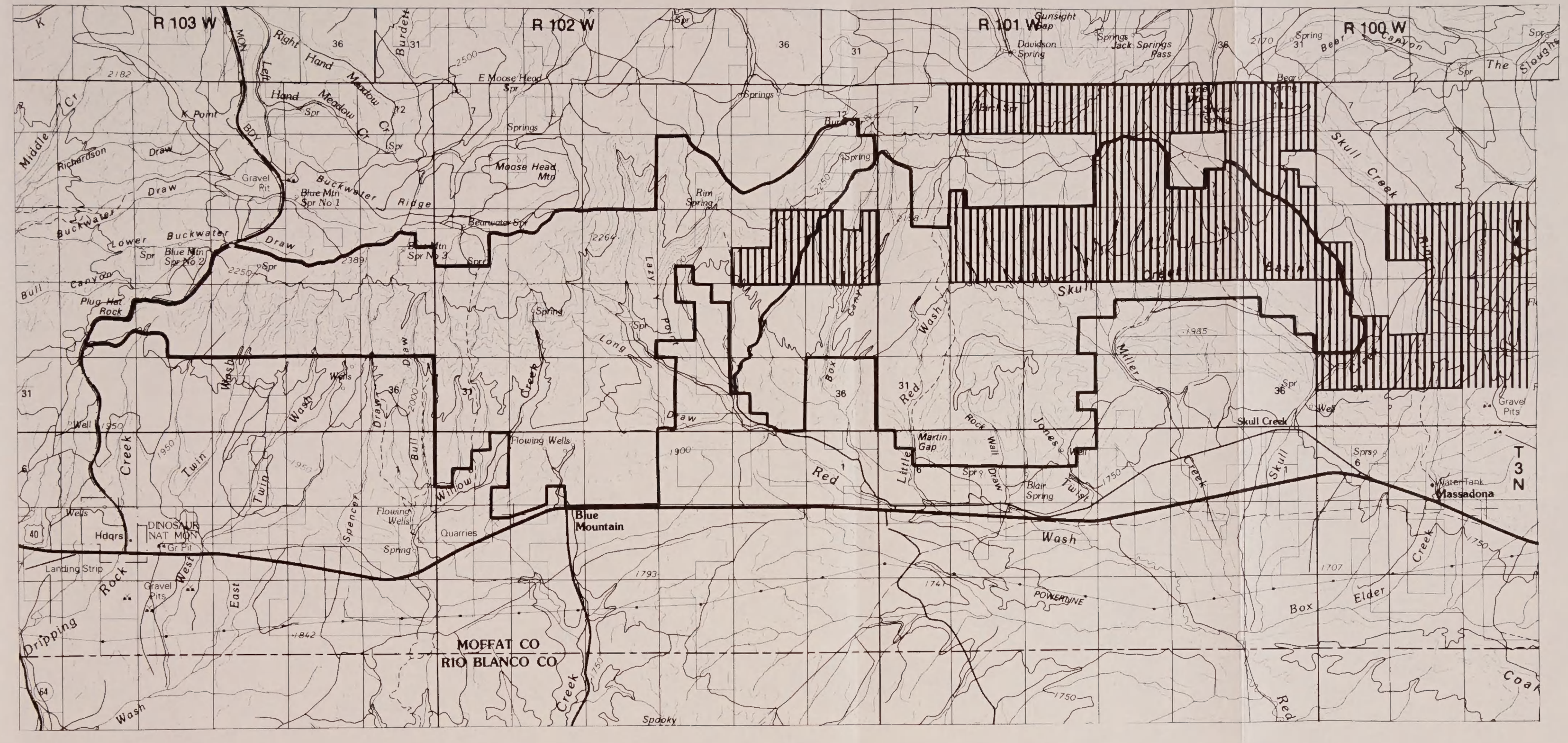
WILLOW CREEK/SKULL CREEK WSA - CONFLICT RESOLUTION ALTERNATIVE

Under this alternative, 10,938 acres of the Willow Creek WSA would be combined with 8,760 acres of the Skull Creek WSA to form one wilderness area of 19,698 acres (see Map 2-19). The area shown on the map deletes 2,430 acres from the west side of the Willow Creek WSA (Willow Creek deletion area) and 4,980 acres from the east side of the Skull Creek WSA (Skull Creek deletion area). The area on the west side of Willow Creek would be deleted to remove a relatively narrow (1-1/2 mile wide) strip containing several range improvements (1-1/4 miles of fence, an abandoned reservoir and a developed spring) and evidence of past seismic activity (including several ways and trails).

The area on the east of the Skull Creek WSA would be removed due to the presence of several ways and jeep trails that bisect the entire portion of the WSA and the potential conflict with range improvement projects which could seriously impact wilderness characteristics on approximately 1,900 acres. An existing BLM road (currently abandoned) which bisects the two WSAs is capable of naturally revegetating to the point of being substantially unnoticeable. The wilderness area identified in this alternative would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on allotments within this alternative would continue at the current rate of 973 AUMs per year.

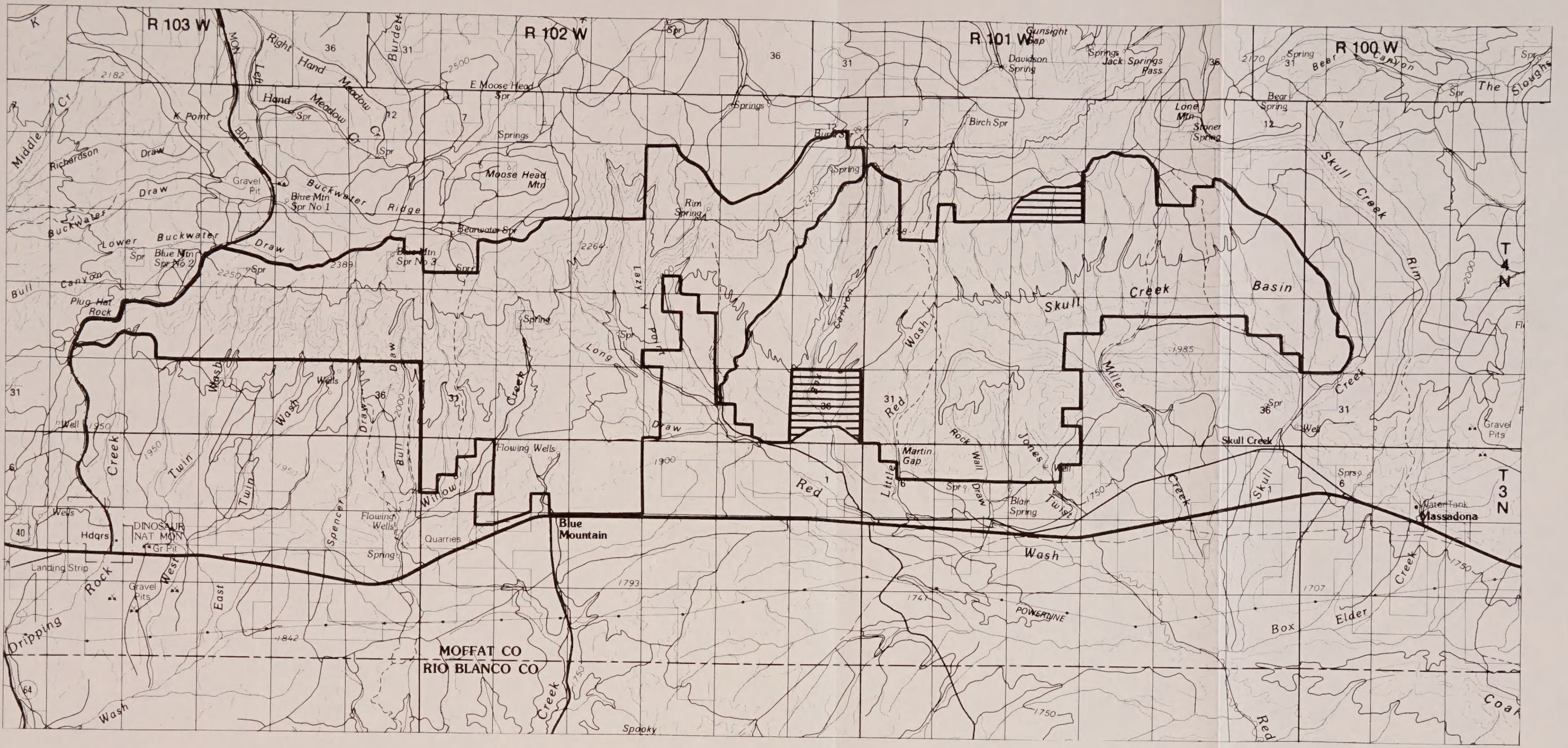


WILLOW/SKULL CREEK

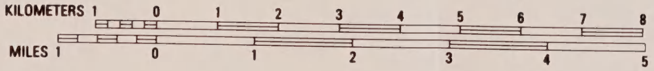
Map 2-15. Skull Creek-Post FLPMA

Oil and Gas Leases

Leases ▥



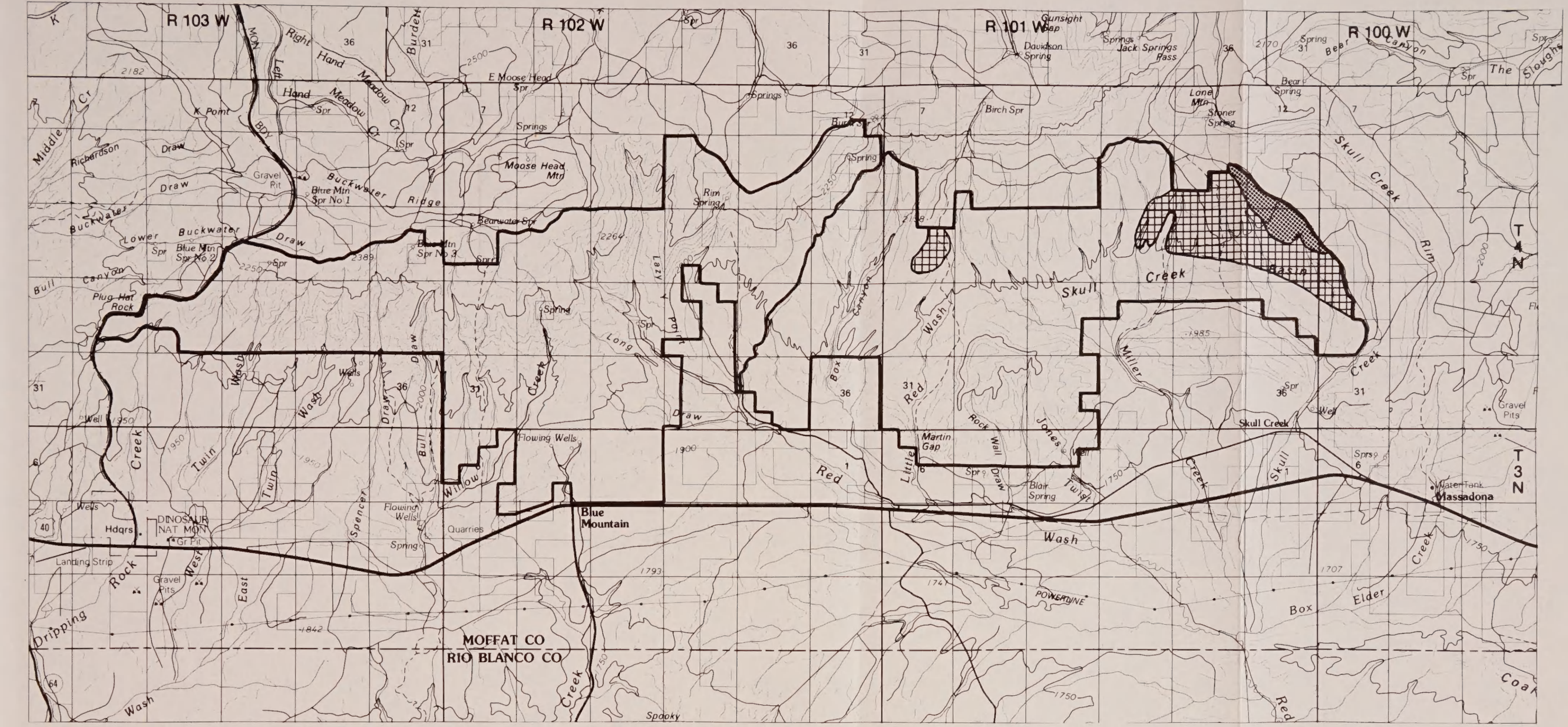
WILLOW/SKULL CREEK



Map 2-16. Skull Creek-State Lands

Considered for Acquisition

Lands considered for acquisition ▤



WILLOW/SKULL CREEK

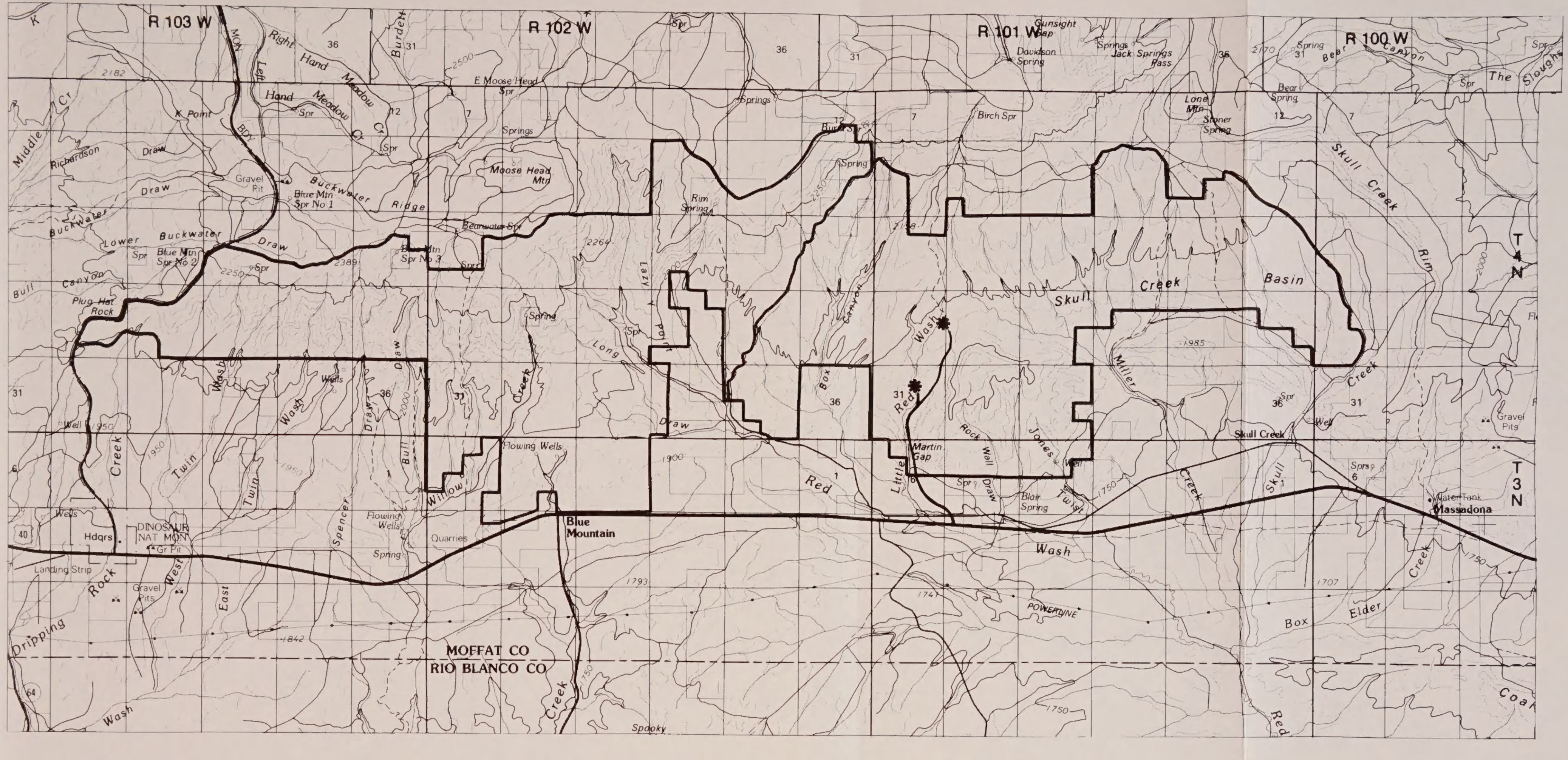
KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

Map 2-17. Skull Creek-Proposed Range Improvements

Burn ▩

Burn and Chain ▦

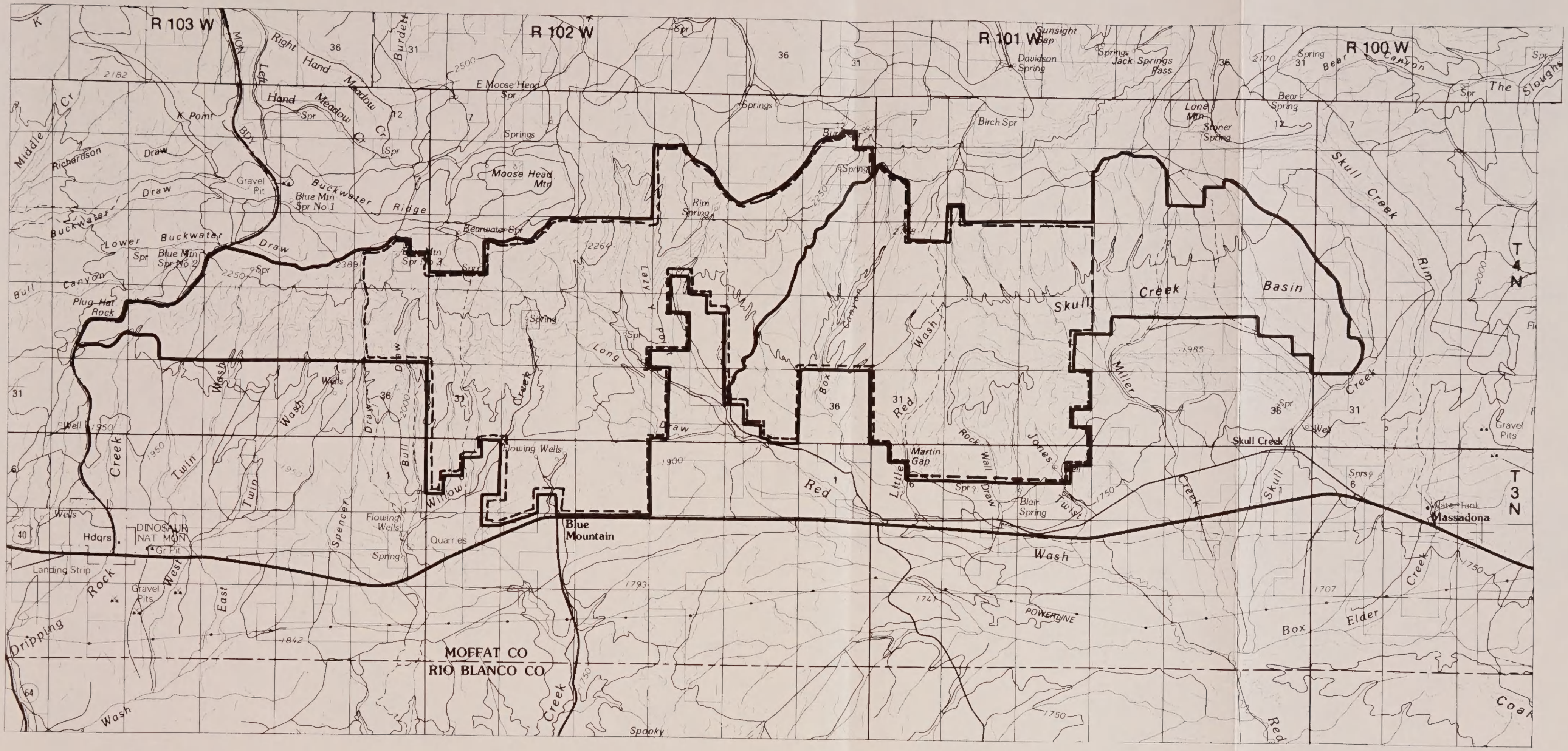


WILLOW/SKULL CREEK

Map 2-18. Skull Creek - Oil and Gas Exploration Scenario

Road —

Drill Pad ✱



WILLOW/SKULL CREEK

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

N

Map 2-19. Willow Creek/Skull Creek-Conflict Resolution Alternative Boundary

Alternative Boundary – – –

Maintenance on existing range improvements, which include one abandoned check dam on Plug Hat Creek, four developed springs with watering troughs, one and one-quarter miles of fence, and one mile of domestic water pipeline (see Map 2-19) would continue under constraints set forth in *Wilderness Management Policy* (USDI, BLM, 1981). Maintenance of existing projects would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out and removed. The EA would specify the construction methods and types of materials suitable for new and existing improvements. Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicle use do not exist, exceptions to this policy could be approved. Although not anticipated under this alternative, new range improvements would be permissible only if determined to be necessary for the purpose of resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock. The areas outside of the proposed wilderness that were originally within the Willow Creek/Skull Creek WSAs would be managed as described in the No Wilderness Alternative for each WSA.

Recreation Management

Under this alternative, 19,698 acres of the combined WSAs would be managed to provide a wilderness setting for nonmotorized forms of recreation such as hiking, photography, hunting, and horseback travel. The uses are currently estimated at 1,400 visitor days per year. Visitor use other than hunting is expected to increase from present levels of 600 to 900 visitor days per year due to the proximity of a designated wilderness within seven miles of the already popular Dinosaur National Monument. Visitor use associated with hunting is not expected to increase from the present 800 visitor days per year since it is limited by the number of licenses issued and game availability. One hundred visitor days of off-road vehicle use associated with hunting would continue to occur, but only outside the designated area. Access to the area is available by a system of roads and vehicle ways which form parts of the wilderness boundary. No visitor facilities, such as parking areas or primitive campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The 19,698 acres of the combined WSAs would be closed to ORV use. It is anticipated that ORV use would be limited to designated roads and trails in the 7,410 acres deleted from the WSA under this alternative.

Minerals Management

Oil and Gas

With this alternative, 19,418 acres would be withdrawn from further leasing. The area defined by the Conflict Resolution Alternative boundary contains 280 acres of private mineral estate which would be open to exploration and development (until acquired by the BLM) as determined by the owner (see Map 2-10). There are no pre-FLPMA leases within the 19,418 acres, therefore, development of oil and gas would not be allowed. Development of post-FLPMA leases would be administratively allowed through means such as directional drilling. It is highly unlikely, however, because of local geologic conditions and the technical limitations of directional drilling, that any oil and gas resources could effectively be developed. Therefore, no development of the post-FLPMA leases within the WSAs is anticipated. Post-FLPMA leases for the Willow Creek and Skull Creek WSAs are shown on maps 2-11 and 2-15.

The Conflict Resolution Alternative would leave 2,430 acres of the original Willow Creek WSA and 4,980 acres of the original Skull Creek WSA open to mineral entry and leasing.

Reasonable foreseeable development would include only exploration and assumes that no producible oil and gas would be discovered in the WSA. One or two exploration wells would be drilled but would not be projected to find producible oil and gas. The two exploratory holes (wells) would be plugged and the roads and pads rehabilitated. This would encompass about 11 acres including two miles of road (see Map 2-13). Subsurface geologic knowledge of the area would be enhanced but no new reserves discovered.

Other Minerals

Under this alternative, 19,418 acres of federal mineral estate would be closed to mining claims. The 280 acres of private mineral estate would be open to mining at the owner's discretion until BLM acquisition. The 2,430 acres of the Willow Creek deletion and the 4,980 acres of the Skull Creek deletion would also be open to mineral entry. A number of minerals such as copper, uranium, and vanadium have been identified adjacent to Skull Creek in the Curtis Formation. This formation is found within the southwestern part of Skull Creek WSA and the eastern part of Willow Creek WSA (see Affected Environment). There are no mining claims or pre-existing mineral rights in the WSA. Given the length of time the resources have been identified, and the lack of claims and mining activity, it is unlikely mining would occur within the WSA.

Acquisition of State and Private Lands

State lands in Colorado adjacent to the Willow Creek/Skull Creek WSAs may have wilderness potential based on a review of aerial photography. These lands are not under the jurisdiction of the BLM and are not currently being managed to protect wilderness characteristics which may exist. Because they are not under the jurisdiction of the BLM, no inventory has been initiated and no determination has been made regarding the wilderness characteristics of these lands. If Congress designates Willow Creek/Skull Creek WSAs as wilderness, BLM would pursue acquisition of those state lands which contain wilderness characteristics at that time. The lands are listed in Table 2-3 and shown on Maps 2-12 and 2-16. A 280-acre parcel of split estate lands (federal surface, private minerals) is located near the north portion of the unit. Upon designation, BLM would pursue acquisition of this mineral estate.

TABLE 2-3

WILLOW CREEK/SKULL CREEK WSAs ADJACENT STATE LANDS

Township	Range	Section
4 North	101 West	16
4 North	102 West	36
4 North	102 West	16
4 North	103 West	36

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow increased deer and elk populations as a result of grazing management actions. No habitat improvement projects are planned. Deer populations would be allowed to increase by 7 animals using the WSAs to a total of 387 animals (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to increase by 2 animals using the WSA to a total of 62 animals (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

WILLOW CREEK/SKULL CREEK WSAs - COMBINED ALL WILDERNESS ALTERNATIVE

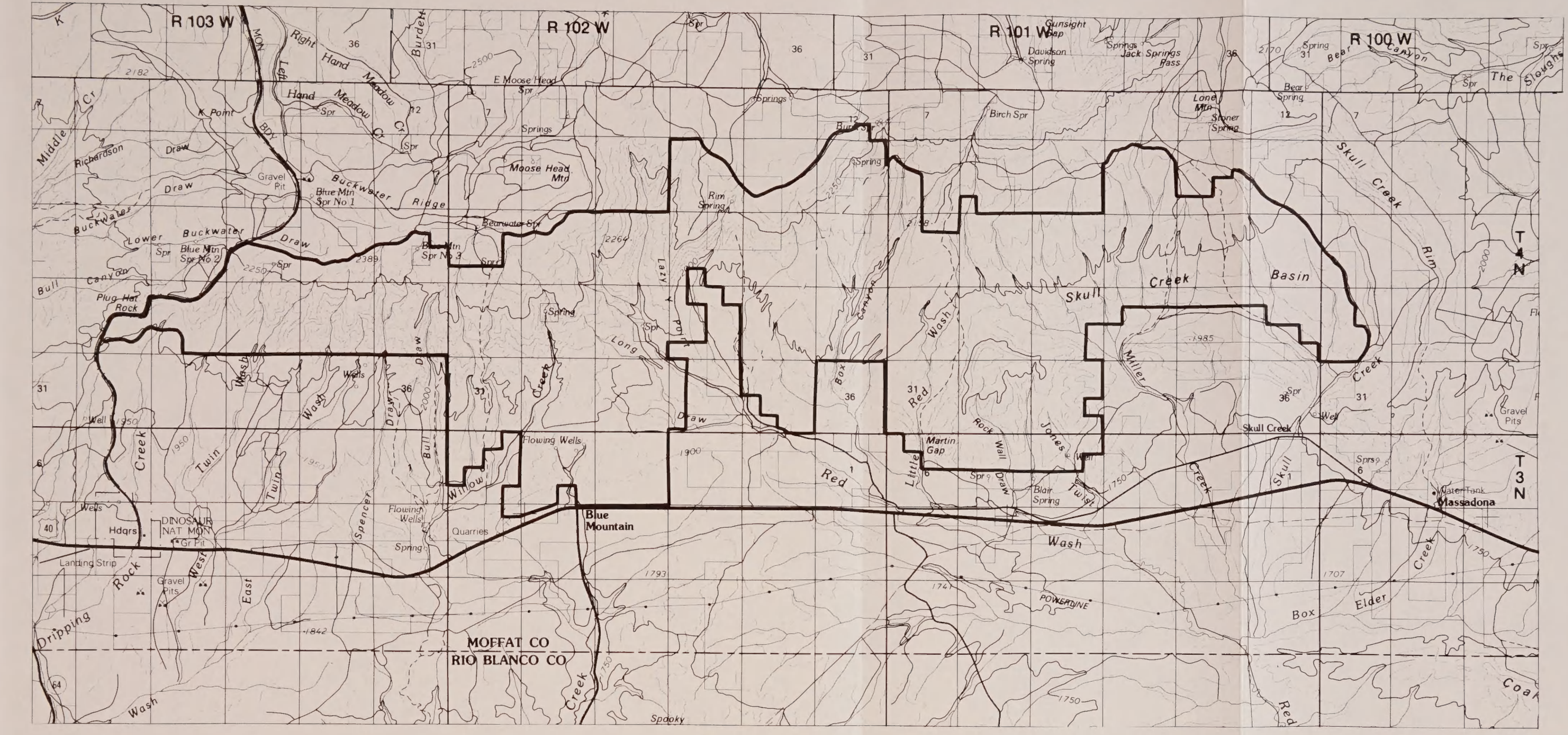
This alternative would combine the Willow Creek and Skull Creek WSAs for a total of 27,108 acres into one wilderness area (see Map 2-20). This wilderness area would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, environmental, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 1,339 AUMs per year. Maintenance on existing improvements would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 198I). Maintenance of existing projects which include one abandoned check dam, four developed springs with watering troughs, one and one-quarter miles of fence, and one mile of domestic water pipeline (see Map 2-19) would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out and removed. The EA would specify the construction methods and types of materials suitable for new and existing improvements. Maintenance on range improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicle use do not exist, exceptions to this policy could be approved. Although none are anticipated under this alternative, new range improvements would be permissible only if necessary for resource protection (rangeland or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, all 27,108 acres of the combined WSAs would be managed to provide a



WILLOW/SKULL CREEK

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

Boundary ▬

N

Map 2-20. Willow / Skull Creek
Combined All Wilderness
Alternative Boundary

wilderness setting for nonmotorized forms of recreation such as hunting, hiking, photography, and horseback riding, with uses totalling 1,700 visitor days per year. The uses are currently estimated at 800 visitor days per year of hunting (of which 100 is motorized) and 600 visitor days per year for other uses. One hundred visitor days of motorized vehicle use currently associated with hunting would shift to nonmotorized hunting use. Visitor use associated with hunting is not expected to increase since it is limited by the number of licenses issued and game availability. Visitor use other than hunting is expected to increase by about 300 visitor days per year due to the proximity of Dinosaur National Monument to a designated wilderness area. The area is accessible by a system of roads and vehicle ways which form parts of the wilderness boundary. No visitor facilities, such as parking areas or primitive campgrounds, would be developed. Nonmotorized use currently occurring, such as hunting and hiking, would be allowed.

Off Road Vehicle (ORV) Management

The entire 27,108 acres of the combined WSAs would be closed to motorized vehicle use under this alternative.

Minerals Management

Oil and Gas

The Combined WSAs Alternative would withdraw 26,828 acres of federal mineral estate from further leasing. The alternative contains 280 acres of private mineral estate which would be open to exploration and development as determined by the owner, until BLM acquisition, (see Map 2-10). The 26,828 acres of federal mineral estate have no pre-FLPMA leases, therefore, no development of oil and gas would be allowed. Development of post-FLPMA leases would be administratively allowed through means such as directional drilling. Because of local geologic conditions and the technical limitations of directional drilling, it is highly unlikely that any oil and gas resources would be developed. Therefore, no development of the post-FLPMA leases within the WSA is anticipated. The post-FLPMA leases for the Willow Creek and Skull Creek WSAs are shown on Maps 2-11 and 2-15.

Other Minerals

The WSAs would be closed to mining claims and leasing on the federal mineral estate. No leasing or mining would occur with the possible exception of the 280 acres of private minerals (until BLM acquisition). Currently no mining claims exist in the WSA nor are any anticipated.

There are no mining claims or pre-existing mineral rights in these WSAs other than the private mineral estate.

Acquisition of State and Private Lands

Acquisition of state lands under this alternative would be the same as that described under the Conflict Resolution Alternative. If Congress designates Willow Creek/Skull Creek WSAs as wilderness, BLM would pursue acquisition of those state lands which still contain wilderness characteristics at that time. The lands are listed in Table 2-3 and shown on Maps 2-12 and 2-16. The BLM would also acquire 280 acres of split estate (federal surface, private minerals) near the northern boundary of the unit.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 380 animals using the WSAs (7,700 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 60 animals using the WSA (400 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

WILLOW CREEK/SKULL CREEK WSAs - COMPARISON OF THE IMPACTS OF THE ALTERNATIVES

A comparison of the impacts of the various alternatives for the Willow Creek and Skull Creek WSAs is shown on Table 2-4. This is a summary drawn from the conclusions presented in Chapter 4 - Environmental Consequences.

TABLE 2-
Willow Creek/Skull Creek

Issues	Willow Creek All Wilderness Alternative (Proposed Action)	Willow Creek No Wilderness Alternative (No Action)	Skull Creek All Wilderness Alte native (Proposed Action)
Wilderness Characteristics	Opportunities for solitude, primitive unconfined recreation, high scenic quality, and the naturalness of the area would be protected on 13,368 acres.	Under the No Wilderness Alternative, the wilderness values of naturalness and solitude would be lost on about one-third of the WSA due to the cumulative effects of projected activities.	Opportunities for solitude, primativ unconfined recreation and the naturalness of the area would be protected on 13,740 acres.
Ranching Operations	Livestock forage production within the Willow Creek WSA would remain at the current level of 812 AUMs. Operating costs on grazing allotments would be slightly higher due to restrictions on vehicle use.	Livestock forage production would remain at current levels of 812 AUMs under this alternative.	Livestock forage production within the Skull Creek WSA would remair at the current level of 527 AUMs. Operating costs on grazing allotments would be slightly higher due restrictions on vehicle use.
Recreation Use and Quality	Nonmotorized recreation use levels in the proposed wilderness would increase from 700 visitor days to 850 visitor days per year consisting of about 400 hunting and 450 hiking visitor days per year. Off-road vehicle use would be prohibited. Opportunities for primitive and unconfined recreation would remain unchanged in a natural setting.	Total recreation use levels would remain at 700 visitor days per year consisting of 300 hiking days and 400 hunter days. Off-road vehicle use associated with hunting is expected to increase to about 75 visitor days per year.	Nonmotorized forms of recreation i the proposed wilderness would increase from 700 to 850 visitor day per year. Off-road vehicle use woul be prohibited. Opportunities for pri itive and unconfined recreation wou remain unchanged in a natural setting.
Water Quality	Since no surface-disturbing activities would occur under this alternative, there would be no change or impact to water quality.	No noticeable increase in sediment yield and contribution of salts from the WSA would result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of up to 25 percent per year.	Since no surface-disturbing activitie would occur under this alternative, there would be no change or impac to water quality.
Big Game Species (Populations and Habitat) and Eagles	Habitat would be maintained in its present condition. Animal numbers of 190 deer, 50 elk, and 2 pair of golden eagles would remain unchanged.	Big game habitat would remain essentially unchanged. Deer and Elk populations using the WSA (190 and 50 respectively) would remain unchanged.	Habitat would be maintained in its present condition. Animal numbers 190 deer, 10 elk, and 3 pairs of gold eagles would remain unchanged.

Comparison of the Alternatives

Skull Creek No Wilderness Alternative (No Action)	Conflict Resolution Alternative	Combined All Wilderness Alternative
Under the No Wilderness Alternative, the wilderness values of naturalness and solitude would be lost on the eastern half of the WSA due to increased off-road vehicle use and range improvement projects.	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 19,698 acres and lost on 7,410 acres.	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 27,108 acres under this alternative.
Livestock forage production would increase from 527 to 656 AUMs.	Livestock forage production within the designated wilderness would remain at current levels. Operating costs on grazing allotments within the wilderness area would be slightly higher due to restrictions on vehicle use. Available AUMs within the Willow Creek deletion. Available AUMs within the Skull Creek deletion (527 AUMs currently within the WSA) could increase by 129 due to proposed range improvement projects. There would be a combined net increase of 124 AUMs (from 1,339 AUMs to 1,463 AUMs).	Livestock forage production within the combined Willow Creek/Skull Creek wilderness would remain at current levels of 1,339 AUMs under this alternative. Due to restrictions on vehicle use operating costs would be slightly higher.
Recreation use levels would remain at current levels of 300 hiking days and 400 hunting days per year. Off-road vehicle use associated with hunting is expected to increase to about 75 visitor days per year. Opportunities for primitive forms of recreation would be lost on the eastern half of the WSA due to projected development.	Recreation use levels within the designated area are expected to increase from 600 to 900 visitor days per year for nonhunting and nonmotorized forms of recreation. Hunting use levels are expected to remain at 800 visitor days per year. Recreation use would total 1,700 visitor days per year. Opportunities for primitive and unconfined recreation would be lost on 7,410 acres deleted under this alternative. Development in the 2,430 acres deleted from the Willow Creek WSA would contribute to a loss of scenic quality.	Recreation use levels are expected to increase from 600 to 900 visitor days per year for nonhunting and nonmotorized forms of recreation. Hunting use levels would remain at 800 visitor days per year. Recreation use would total 1,700 visitor days per year. Opportunities for primitive recreation would be protected on 27,108 acres.
There would be an increase in sediment yield and contribution of salts of up to 28 percent from the WSA in the short term (about 3 years), although there would be a long-term decrease of about 4 percent. This would be an immeasurably small short-term contribution to, or long-term decrease, in sediment and salts in the White River. The long-term changes are well within the natural variation of up to 25 percent.	There would be a short-term (about 3 years) increase in sediment yield and contribution of salts of up to 15 percent from the combined WSAs, although there would probably be a long-term decrease of about 1.5 percent. This would be an immeasurably small short-term contribution to, or long-term decrease, in sediment and salts in the White River. These changes are well within the natural variation of up to 25 percent.	Since no surface-disturbing activities would occur under this alternative, there would be no change or impact to water quality.
There would be an increase in use of about 7 deer and 2 elk from present levels of 190 and 10 respectively. No impacts to golden eagles or other raptors would occur.	For both WSAs as a whole, there would be an overall increase in use of about 7 deer and 2 elk from present levels of 380 and 60 respectively. No impacts to golden eagles or other raptors would occur.	Habitat would remain in present conditions. Animal numbers of 380 deer, 60 elk, and 5 pair of golden eagles would remain unchanged.

TABLE 2-4

Issues	Willow Creek All Wilderness Alternative (Proposed Action)	Willow Creek No Wilderness Alternative (No Action)	Skull Creek All Wilderness Alternative (Proposed Action)
Mineral Exploration and Production	The WSA (13,368 acres) would be closed to mineral entry and the low potential for oil and gas exploration and development would be precluded. No subsurface geologic data would be gathered within the WSA.	The area (13,368 acres) would be open to leasing, exploration and development; the low potential for oil and gas exploration and development could be realized. No production or development is projected, however.	The WSA (13,740 acres) would be closed to mineral entry and the potential for oil and gas exploration and development would precluded. No geologic data would be gathered within the WSA.
State and Private Lands	Acquisition of a portion of adjoining state land and 94 acres of private mineral estate would be pursued under this alternative. Current uses of the land would continue.	No impact or change in ownership is anticipated for state or private lands in the area. Current use of the land would continue.	Acquisition of a portion of adjoining state land and 186 acres of private mineral estate would be pursued under this alternative. Current uses of the land would continue.

(Continued)

Skull Creek No Wilderness Alternative (No Action)	Conflict Resolution Alternative	Combined All Wilderness Alternative
The area (13,740 acres) would be open to leasing, exploration, and development; the low potential for oil and gas development could be realized, although no production is anticipated.	The areas recommended for wilderness (19,698 acres) would be closed to mining claims and leasing and potential oil and gas development would be precluded. No subsurface geologic data would be gathered within these areas. The low potential for oil and gas exploration and development could be realized in those portions not recommended as wilderness (7,410 acres). No production or development is projected, however.	The WSAs (27,108 acres) would be closed to mineral entry and the low potential for oil and gas exploration and development would be precluded. No subsurface geologic data would be gathered within the WSAs.
No impact or change in ownership is anticipated for state or private lands in the area. Current use of the land would continue.	Acquisition of portions of adjoining state lands and 280 acres of private mineral estate would be pursued, but current uses of the land would continue.	Acquisition of portions of adjoining state lands and 280 acres of private mineral estate would be pursued, but current uses of the land would continue.

BLACK MOUNTAIN WILDERNESS STUDY AREA ALTERNATIVES

BLACK MOUNTAIN WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION AND NO ACTION)

This alternative would recommend that the entire 9,932 acres of the Black Mountain WSA not be designated wilderness (see Map 2-21). The WSA would be managed as described in the following sections.

Grazing Management

Authorization for short-term grazing use within the WSA would remain at the current level of 635 AUMs. New range improvement projects such as burning and seeding 500 acres and chaining 300 acres of pinyon/juniper could raise the number of AUMs to 731 in the long term (see Map 2-22 for new range improvement projects). The potential increase in AUMs generated by range improvements would not necessarily result in an increase of livestock use but would allow better distribution of stock and utilization of previously unavailable forage. Existing range improvements, consisting of 7 earthen stock ponds and 4½ miles of fence, would continue to receive maintenance by the individual grazing permittees through provisions of the grazing permit or cooperative agreement under which each project was authorized (see Map 2-23 Existing Range Improvements). Use of motorized vehicles or equipment would be allowed where topography permits. The final decision as to which projects would be developed and their exact locations would be made following the preparation of an environmental assessment (EA) for each project.

Recreation Management

Under this alternative, 9,932 acres of the Black Mountain WSA would be managed to provide a predominantly natural setting with uses totaling 475 visitor days per year. Uses are currently estimated at 400 visitor days per year for hunting (including 50 visitor days of motorized use) and less than 50 visitor days per year for other uses such as hiking, backpacking, photography, and horseback travel. Nonmotorized forms of recreation such as hiking, backpacking, and hunting, would continue at the current rate of 400 visitor days per year. Motorized hunting use would increase from present levels of 50 to about 75 visitor days per year. The area is accessible by a system of roads and vehicle ways forming the eastern boundary of the WSA and by State Highway 64 which forms part of the western boundary. No visitor facilities, such as parking areas or campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 9,932 acres of the Black Mountain WSA would be open to motorized vehicle use under this alternative.

Minerals Management

This alternative would make available 9,932 acres in the WSA to mineral entry and leasing. There are no pre-FLPMA leases or mining claims, however, there are post-FLPMA leases (see Map 2-24). No oil and gas or other mineral exploration or development is anticipated. The potential oil-producing formations appear to be near a structural low for the area. Oil and gas that may have been in those formations has most likely migrated up-dip to the fields outside the WSA (see discussion in Affected Environment).

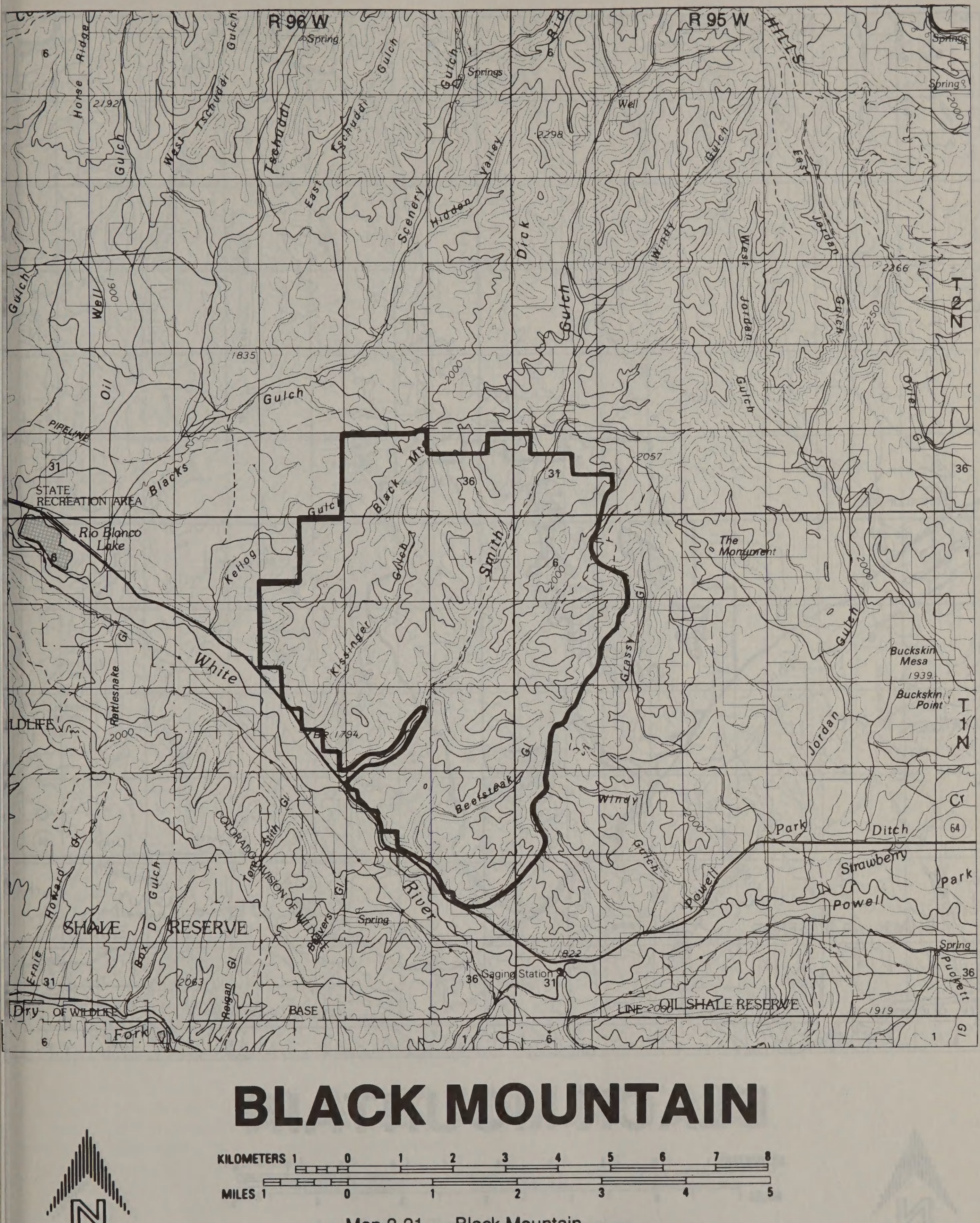
The WSA would be open to mining claims and leasing. There are currently no mining claims or mineral leases other than post-FLPMA oil and gas. No mineral exploration or development is anticipated.

Acquisition of State and Private Land

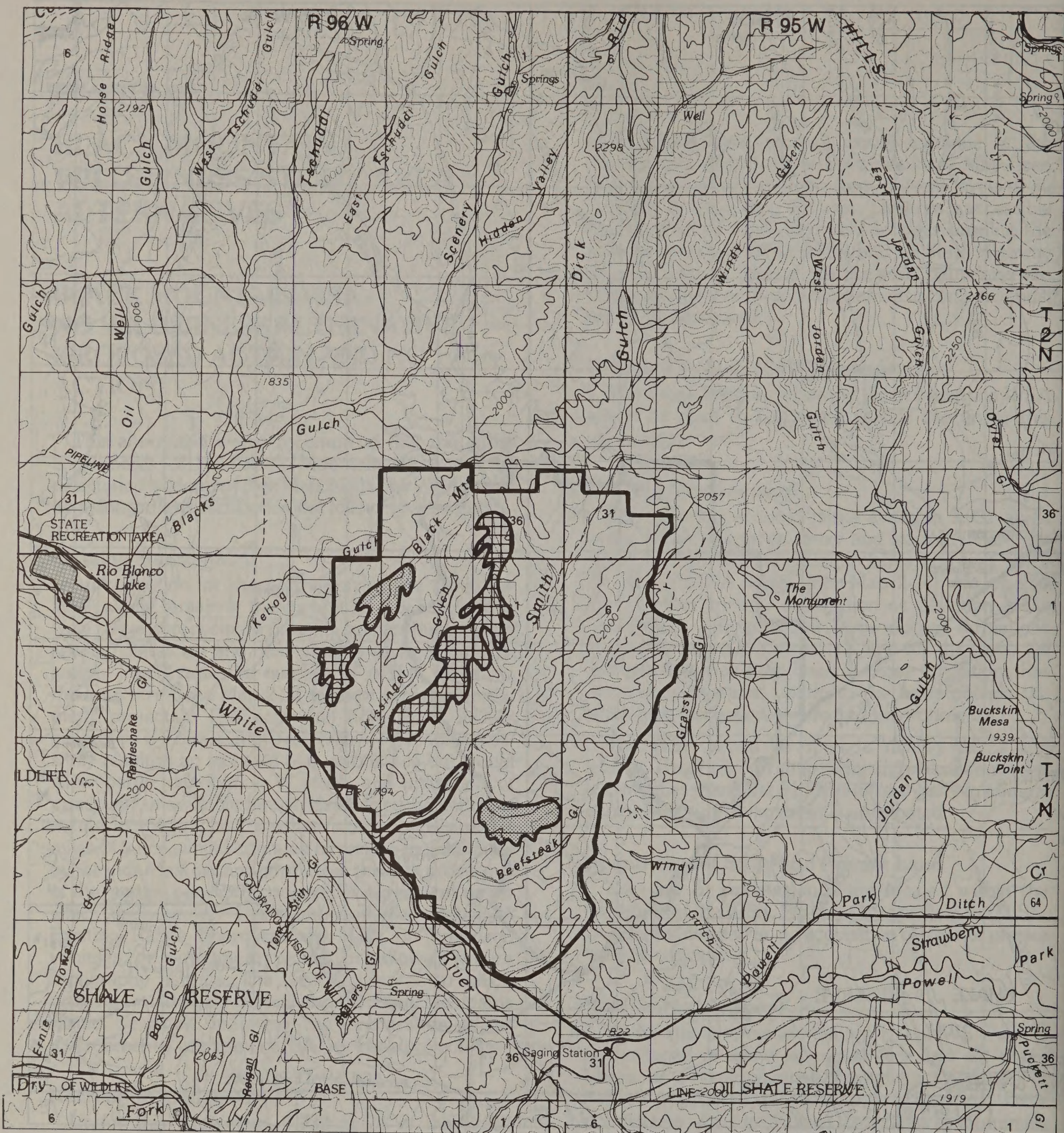
No state or private lands are located within the boundary of the WSA. No state lands adjoin the WSA. Under this alternative, no acquisition of state or private lands is anticipated.

Wildlife Management

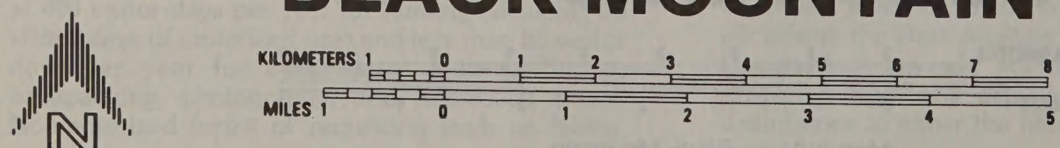
Under this alternative, habitat in the WSA would be managed to allow increased deer and elk populations as a result of range management actions. No habitat improvement projects are planned. Deer populations would be allowed to increase by 20 animals using the WSA to a total of 300 animals (73,290 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 20 animals using the WSA (2,490 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.



Map 2-21. Black Mountain WSA Boundary

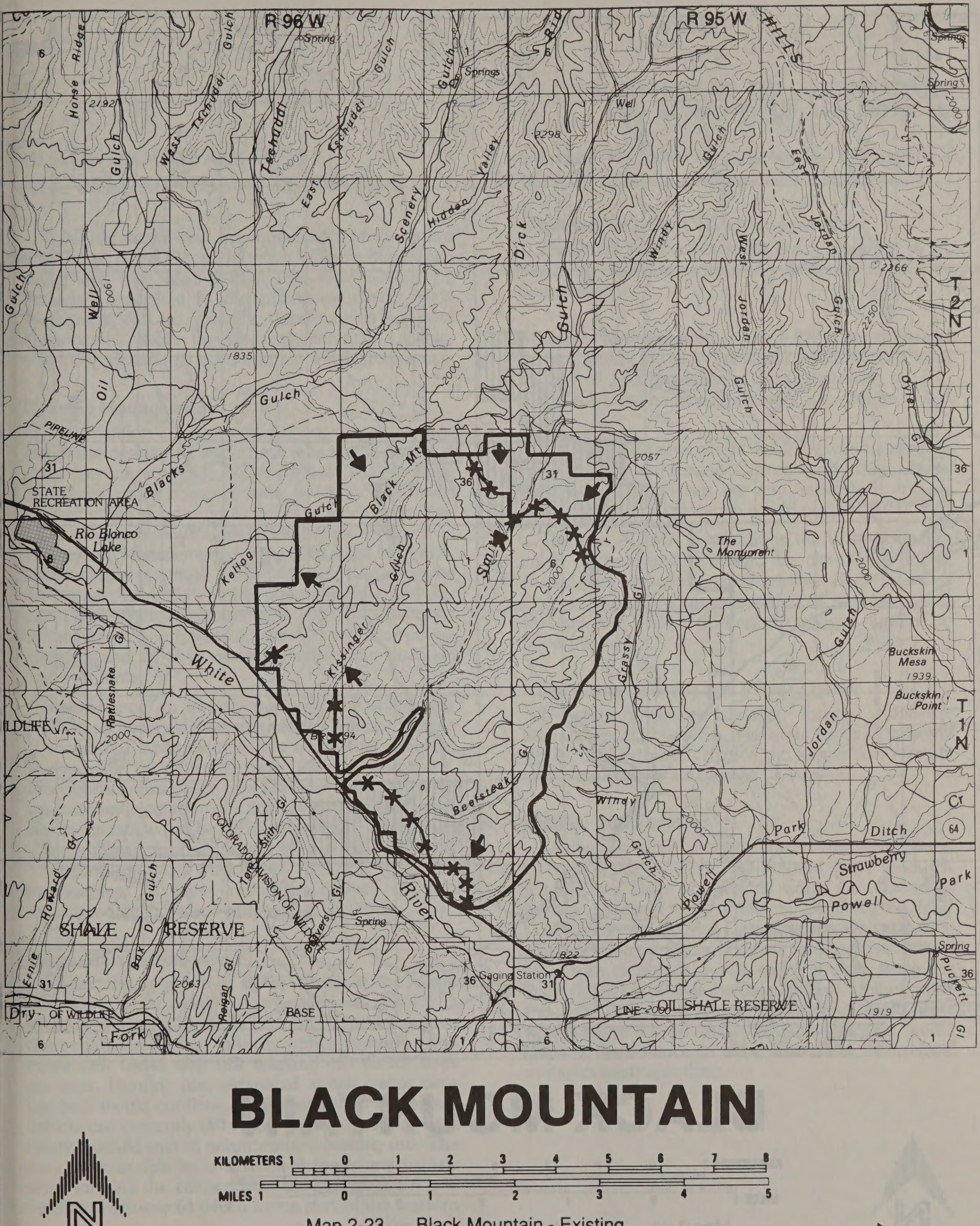


BLACK MOUNTAIN



Map 2-22. Black Mountain - Proposed Range Improvements

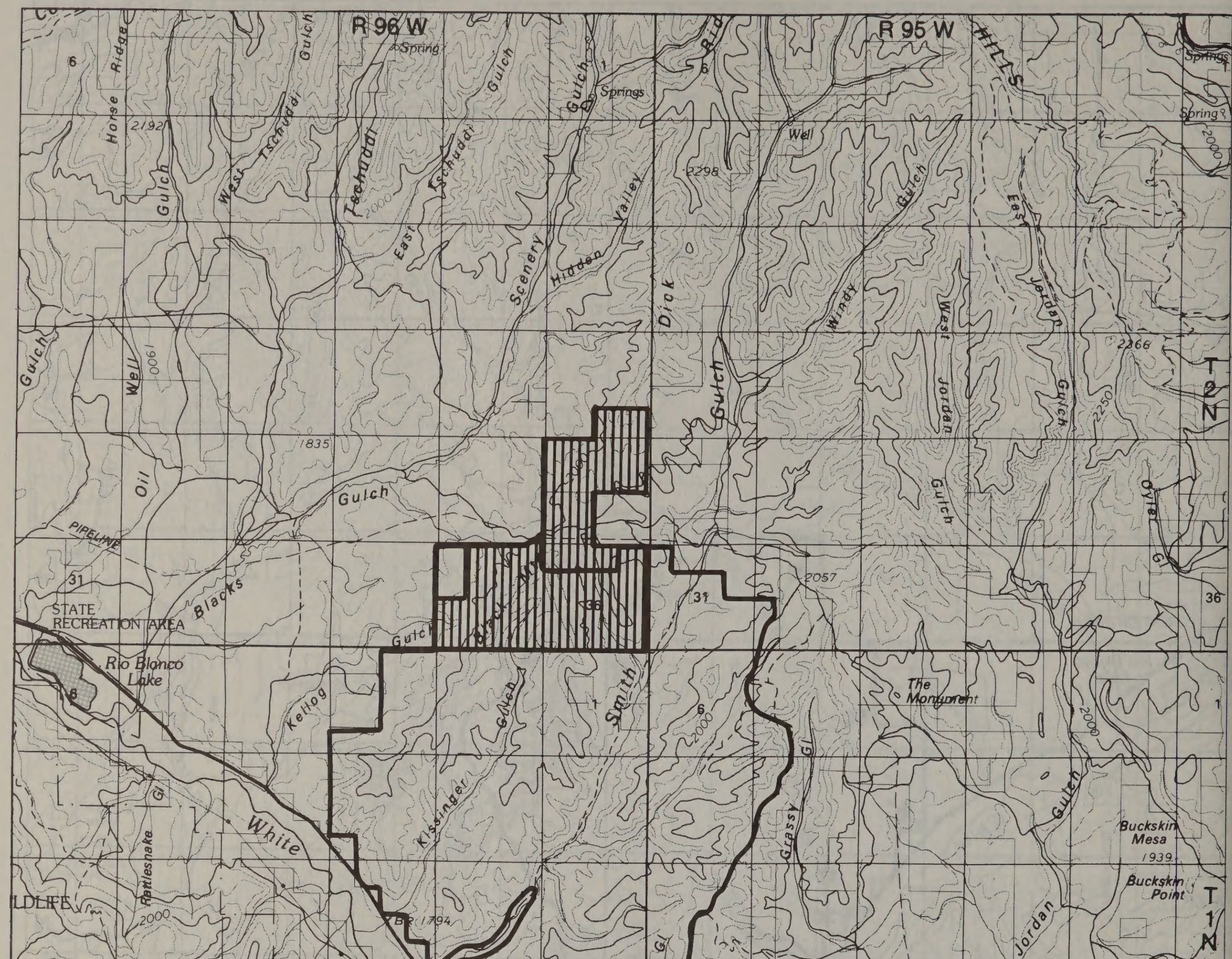
Burn and Seed	▦
Chain	▨



Map 2-23. Black Mountain - Existing Range Improvements

Stock Ponds ➔

Fence ✗—✗—✗



Map 2-24. Black Mountain - Post-FLPMA Oil and Gas Leases

Post FLPMA ▥
Oil and Gas Leases

BLACK MOUNTAIN WSA - ALL WILDERNESS ALTERNATIVE

This alternative would recommend that the entire 9,932 acres of the Black Mountain WSA be designated wilderness (see Map 2-21). The WSA would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 635 AUMs per year. Maintenance on existing range improvements, which include seven earthen stock ponds and 4½ miles of fence, (see Map 2-23) would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981). Maintenance on these projects would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out or reclaimed. The EA would specify the construction methods and types of materials suitable to maintain improvements.

Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicle use do not exist, exceptions to this policy could be approved. Although none are anticipated under this alternative, new range improvements would be permissible only if determined to be necessary for the purpose of resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, 9,932 acres of the Black Mountain WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation such as hiking, photography, hunting, and horseback travel with use totalling 450 visitor days per year. Hunting use, estimated at 400 visitor days per year would continue at current levels. Motorized vehicle use currently (50 visitor days) associated with hunting would shift to nonmotorized hunting use. The area is accessible by a system of roads and vehicle ways forming the eastern boundary of the WSA and by State Highway 64 which forms part of the western boundary. No visitor facilities, such as parking areas or primitive campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 9,932 acres of the Black Mountain WSA would be closed to motorized vehicle use under this alternative.

Minerals Management The 9,932 acres of federal mineral estate in the WSA would be withdrawn from further oil and gas leasing. Since there are no pre-FLPMA leases, no development or exploration would occur.

The federal mineral estate would be withdrawn from mining claims and leasing. Currently no mining claims exist on the WSA nor are any anticipated and no development or exploration would occur.

The post-FLPMA leases within the WSA boundary could be held and produced by directional drilling should that procedure prove feasible. Because no oil and gas resources are anticipated, it is unlikely that this or any other drilling procedure would be undertaken.

Acquisition of State and Private Lands

No state or private lands are located within the boundaries of the WSA. No state lands adjoin the WSA. Under this alternative, no acquisition of state or private lands is anticipated.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 280 animals using the WSA (73,290 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to remain at present levels of 20 animals using the WSA (2,490 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

BLACK MOUNTAIN WSA - COMPARISON OF THE IMPACTS OF THE ALTERNATIVES

A comparison of the impacts of the alternatives is presented in Table 2-5. This is a summary drawn from the conclusions presented in Chapter 4 - Environmental Consequences.

WINDY GULCH WILDERNESS STUDY AREA ALTERNATIVES

WINDY GULCH WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION AND NO ACTION)

This alternative would recommend that the entire 12,274 acres of the Windy Gulch WSA not be designated wilderness (see Map 2-25). The WSA would be managed as described in the following sections.

Grazing Management

Authorization for short-term grazing use within the WSA would remain at the current level of 879 AUMs. New proposed range improvement projects, such as burning 1,040 acres, chaining and burning 600 acres of pinyon/juniper, and the construction of 11 new stock ponds, could raise the number of AUMs to 1,071 in the long term (see Map 2-26 for new range projects). The potential increase in AUMs generated by range improvements would not necessarily result in an increase of livestock use but would allow better distribution of stock and utilization of previously unavailable forage. Existing range improvements, consisting of two earthen stock ponds and one-fourth mile of fence, would continue to receive maintenance by the individual grazing permittees through provisions of the grazing permit or cooperative agreement under which each project was authorized (see Map 2-27 for existing range improvements). Use of motorized vehicles or equipment would be allowed where topography permits.

Recreation Management

Under this alternative, 12,274 acres of the Windy Gulch WSA would be managed to provide a predominantly natural setting with uses totalling 280 to 330 visitor days per year. No change in recreation use is anticipated.

Hunting is expected to remain at the current estimated levels of 300 visitor days per year; hiking and backpacking are expected to remain at less than 30 visitor days per year. No off-road vehicle use is known or expected to occur. No public vehicle access is legally available to the WSA since the only roads to the WSA are on private property. No visitor facilities, such as parking areas or campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 12,274 acres of the Windy Gulch WSA would be open to motorized vehicle use under this alternative.

Minerals Management

This alternative would make available 12,274 acres in the WSA to mineral entry and leasing. There are no pre-FLPMA leases or mining claims, however, there are post-FLPMA leases (see Map 2-28). No oil and gas or other mineral exploration or development is anticipated. The potential oil-producing formations appear to be near a structural low for the area. Oil and gas that may have been in those formations has most likely migrated up-dip to the fields outside the WSA (see discussion in Affected Environment).

Acquisition of State and Private Lands

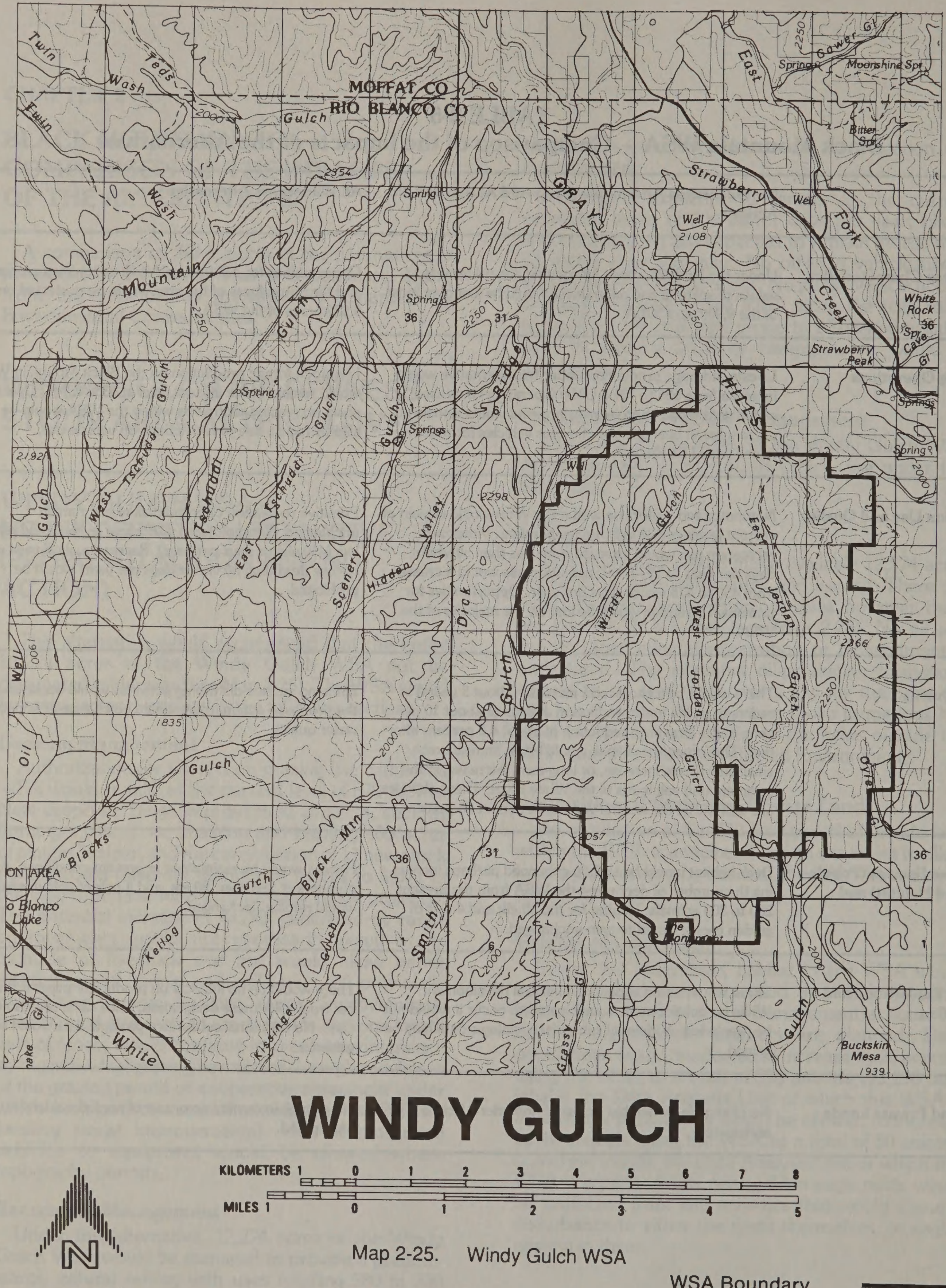
No acquisition of the 320 acre parcel of private land within the WSA is anticipated, or an easement to allow legal public access by road to the WSA boundary is anticipated.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow increased deer and elk populations as a result of range management actions. No habitat improvement projects are planned. Deer populations would be allowed to increase by 25 animals using the WSA to a total of 375 animals (73,290 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to increase by 10 animals using the WSA to a total of 50 animals (2,490 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

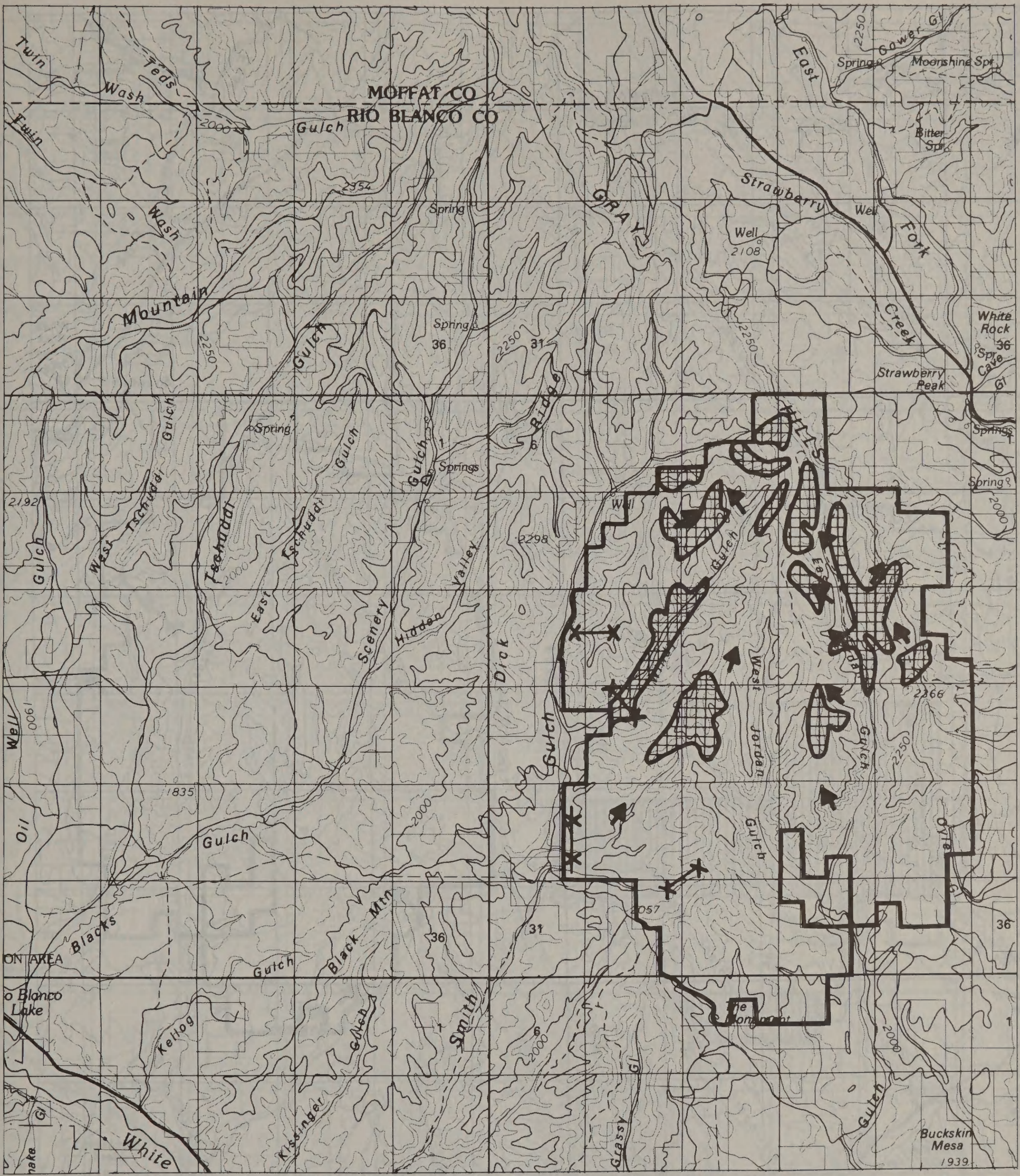
TABLE 2-5
Black Mountain WSA - Comparison of the Impacts of the Alternatives

ssue	No Wilderness Alternative (Proposed Action and No Action)	All Wilderness Alternative
Wilderness Characteristics	Under the No Wilderness Alternative, the wilderness values of solitude and naturalness would be lost over most of the 9,932 acre WSA.	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on all 9,932 acres of the WSA.
Ranching Operations	Livestock forage production under this alternative would increase from 635 to 731 AUMs. Operating costs associated with range improvement projects would remain at current levels because use of motor vehicles for maintenance would be allowed.	Livestock forage production on the Black Mountain WSA would remain at the current level of 635 AUMs. Operating costs on grazing allotments within the WSA would be slightly higher due to restrictions on vehicle use.
Recreation Use and Quality	Nonmotorized visitor use within the WSA would remain at current levels of 400 visitor days per year. Motorized recreation use would increase from less than 50 visitor days per year to 75. Total recreation use would increase from 450 to 475 visitor days per year. Opportunities for primitive recreation would be lost on the majority of the WSA.	Primitive recreation opportunities would remain unchanged. Nonmotorized visitor use levels would remain low (450 visitor days per year). Recreational off-road vehicle use (less than 50 visitor days per year) would be prohibited.
Water Quality	There would be a short-term increase (about 3 years) in sediment yields and contribution of salts of about 10 percent, and a long-term reduction of about 4.5 percent after that. The impact or change would be an immeasurably small short-term increase, or long-term decrease, in the sediment and salt loads of the White River. These changes are well within the natural variation of about 25 percent.	Since no surface-disturbing activities would occur under the proposed action, there would be change or impact to water quality.
Big Game Species (Populations and Habitat) and Eagles	Deer habitat would be slightly enhanced perhaps increasing the number of deer using the WSA from the present 280 to 300 animals. Habitat for the 20 elk and 4 pair of golden eagles would remain unchanged.	Habitat would be maintained in present conditions. Animal numbers of 280 deer, 20 elk, and 4 pair of golden eagles would remain unchanged.
Mineral Exploration and Production	There would be no impacts on mineral development. While no development is anticipated to occur it would not be precluded. Additional subsurface geologic data may be gained.	There would be no impacts on producible mineral resources from wilderness designation, since none are known to exist. No additional subsurface geologic data would be gained.
State and Private Lands	No change in ownership or use of nonfederal land is anticipated.	No change in ownership or use of nonfederal land is anticipated.



Map 2-25. Windy Gulch WSA

WSA Boundary



WINDY GULCH

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

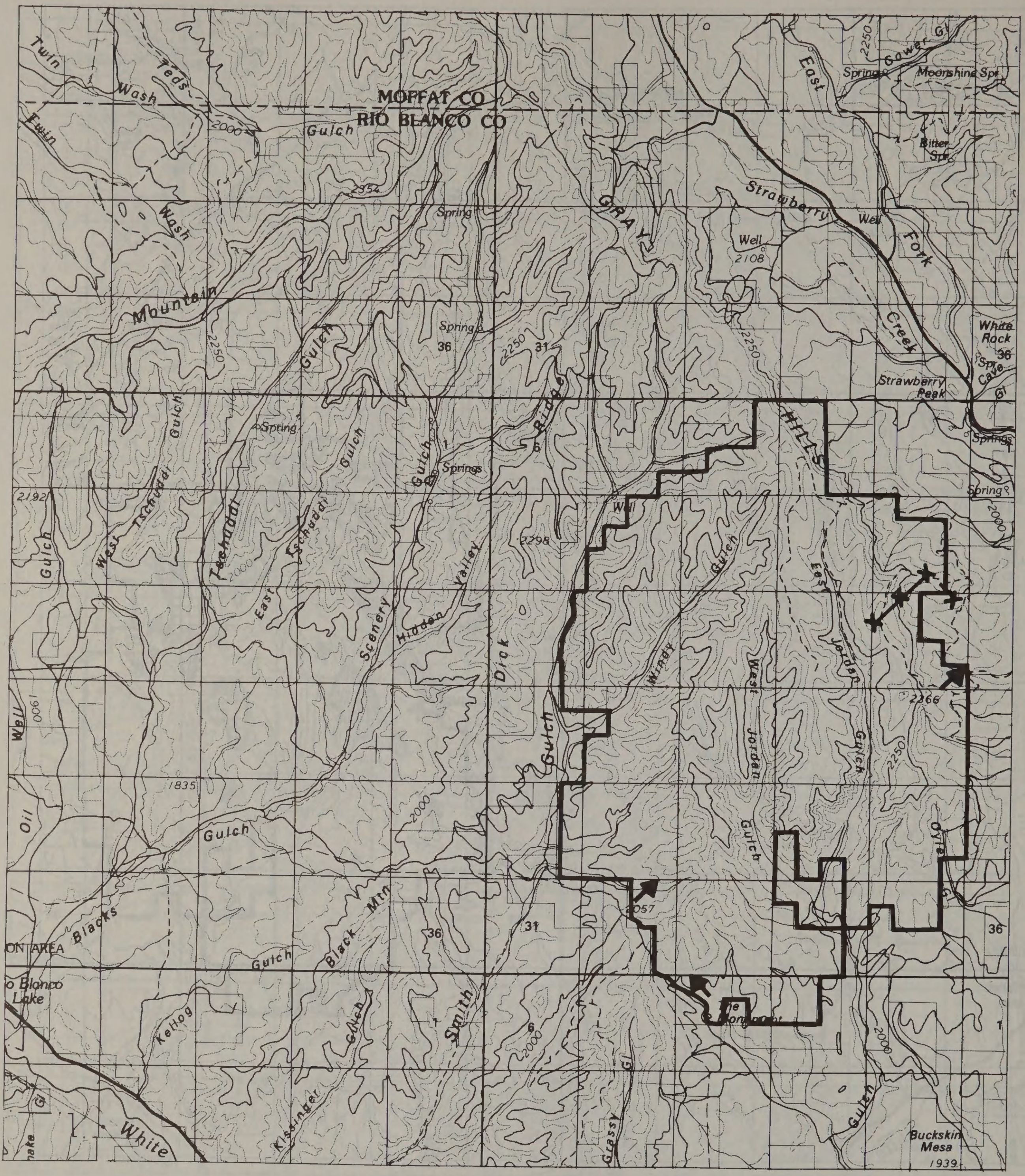
N

Map 2-26. Windy Gulch - Proposed Range Improvements

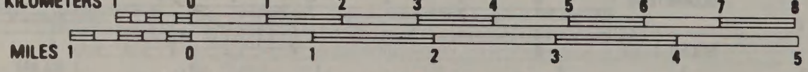
Burning and Chaining ▦

Fences —X—X—X—

Stock Ponds ➔



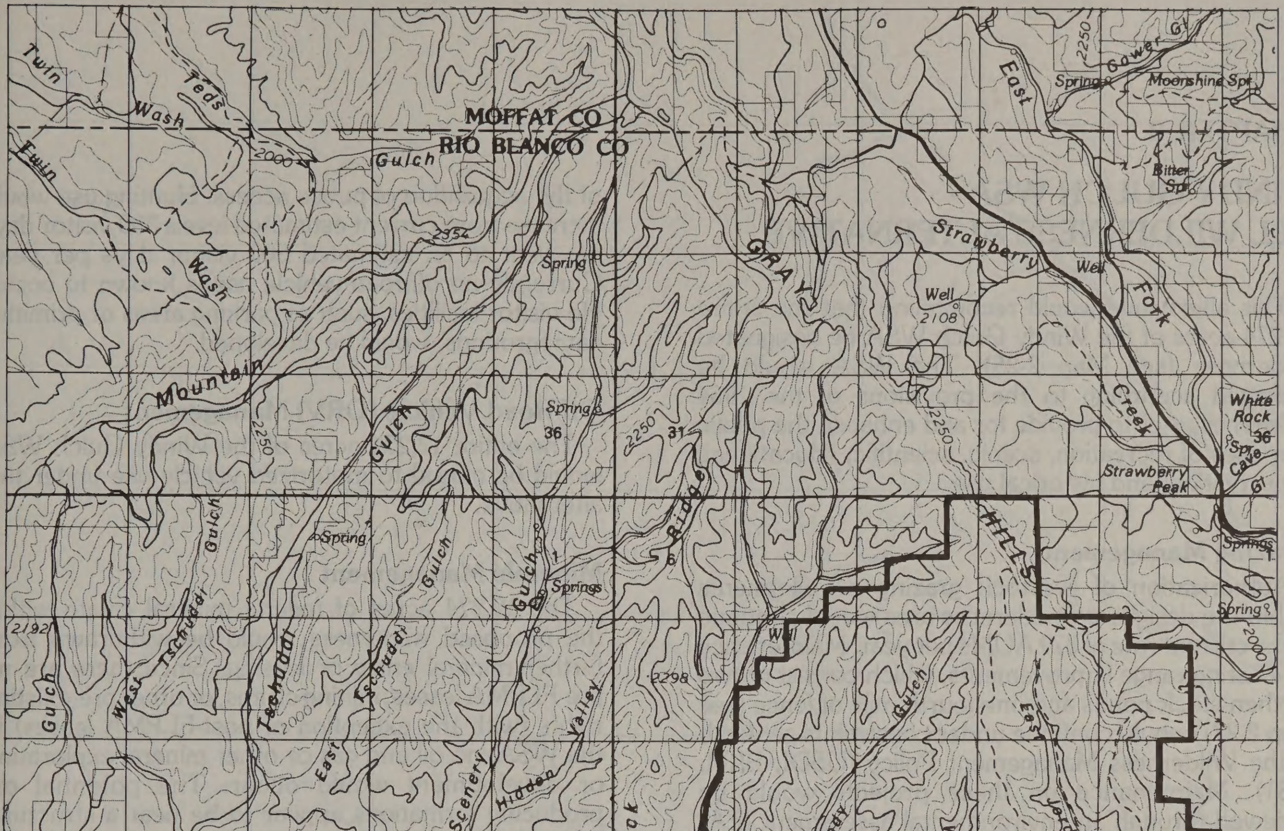
WINDY GULCH



Map 2-27. Windy Gulch - Existing Range Improvements

Fence —X—X—X—

Stock Ponds ⟶



WINDY GULCH

Map 2-28. Windy Gulch - Post-FLMPA
Oil and Gas Leases

Post-FLPMA
Oil and Gas Leases ▥

WINDY GULCH WSA - ALL WILDERNESS ALTERNATIVE

This alternative would recommend that the entire 12,274 acres of the Windy Gulch WSA be designated wilderness (see Map 2-25). The WSA would be managed according to the provisions of the 1964 Wilderness Act to provide for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 879 AUMs per year. Maintenance on existing range improvements, which consist of two earthen stock ponds and one-fourth mile of fence (see Map 2-27), would continue under constraints set forth in the Wilderness Management Policy (USDI, BLM, 1981). Maintenance on these projects would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out, removed, and rehabilitated. The EA would specify the construction methods and types of materials suitable for improvements.

Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicle use do not exist, exceptions to this policy could be approved. Although none are proposed under this alternative, new range improvements would be permissible only if determined to be necessary for the purpose of resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock. Existing stock ponds within the WSA may require maintenance by motor vehicles. In the event that this is necessary, a case-by-case analysis will be done to determine the minimum disturbance necessary for adequate maintenance.

Recreation Management

Under this alternative, 12,274 acres of the Windy Gulch WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation such as hiking and hunting. Total use is estimated to be 580 visitor days per year. Acquisition of public access would be pursued. Nonmotorized forms of recreational use, such as hiking and photography, would increase over the current estimated rate of less than 30 visitor days per year to 80 visitor days per year as a result of the acquisition of public access. Hunting use would increase from current estimated levels 300 visitor days per year to an estimated 500 visitor days per year. Currently no off-road-vehicle use is known to occur. No visitor facilities, such as parking areas or primitive campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 12,274 acres of the Windy Gulch WSA would be closed to motorized vehicle use under this alternative.

Minerals Management

The 12,274 acres of federal mineral estate within the proposed wilderness would be withdrawn from further mineral entry or leasing. Since there are no pre-FLPMA leases, mining claims, or other pre-existing rights (with the exception of post-FLPMA leases) in the WSA, no oil and gas or other mineral exploration or development would occur. The potential oil-producing formations appear to be near a structural low for the area. Oil and gas that may have been in those formations has most likely migrated up-dip to the fields outside the WSA (see discussion in Affected Environment).

The post-FLPMA leases within the WSA boundary could be held and produced by directional drilling should that procedure prove feasible. Because no oil and gas resources are anticipated, it is unlikely that this or any other drilling procedure would be undertaken.

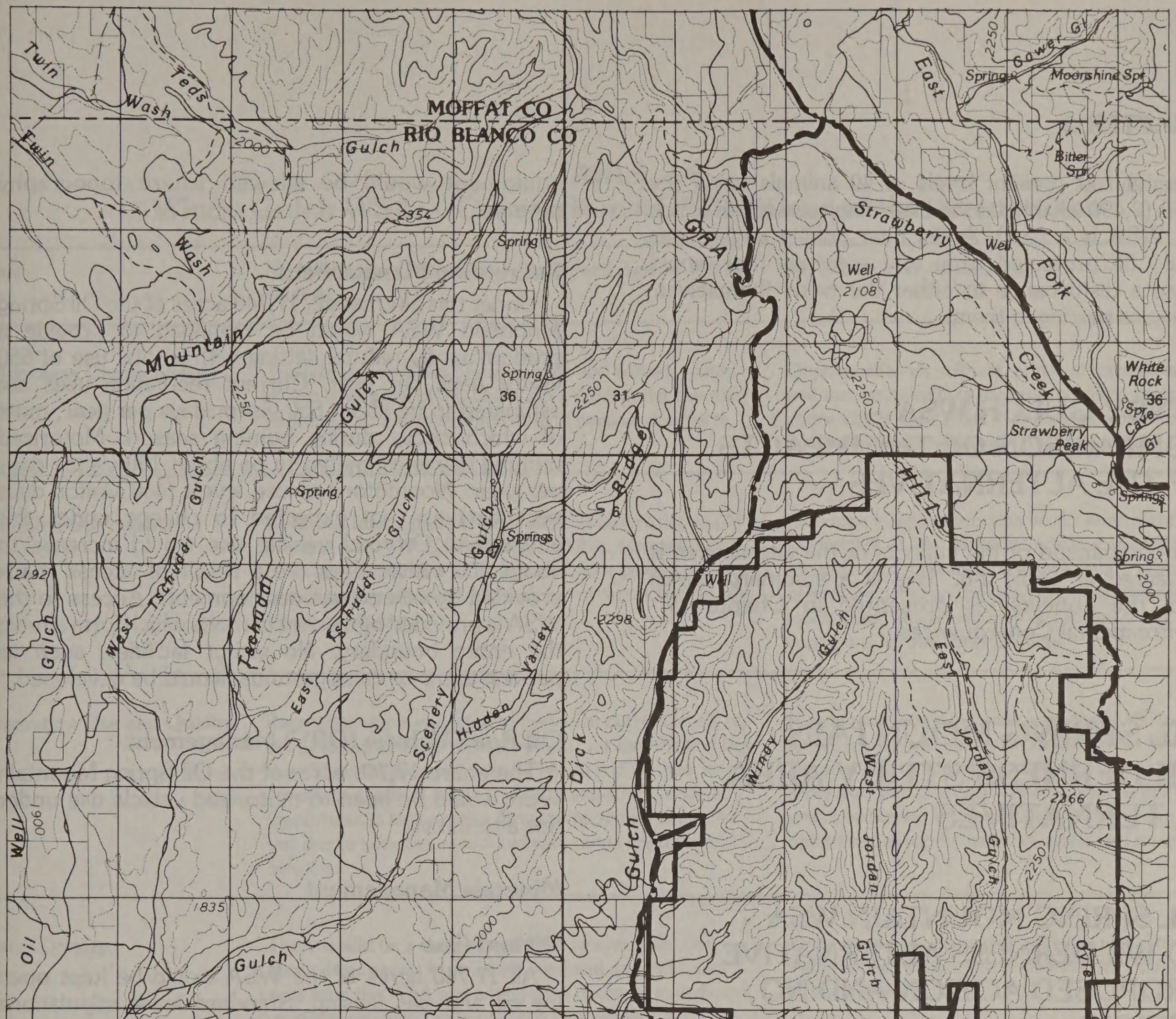
No leasing or mining would occur. Currently no mining claims exist on the WSA nor are any anticipated.

Acquisition of State and Private Lands

A 320 acre private land inholding is located within the boundaries of the WSA. Under this alternative, no acquisition of the parcel is anticipated. BLM would seek to acquire an easement on an existing road across adjoining private land so as to allow legal public access by road to the boundary of the WSA (see Map 2-29).

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow maintained deer and elk populations. Deer populations would be allowed to remain at present levels of 350 animals using the WSA (73,290 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed



Map 2-29. Windy Gulch - Possible Access Routes to be Acquired on Existing Roads

Possible Access Roads ——•——

to remain at present levels of 40 animals using the WSA (2,490 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

WINDY GULCH WSA - COMPARISON OF THE IMPACTS OF THE ALTERNATIVES

A comparison of the impacts of the alternatives is presented in Table 2-6. This is a summary drawn from the conclusions presented in Chapter 4 - Environmental Consequences.

OIL SPRING MOUNTAIN WILDERNESS STUDY AREA ALTERNATIVES

OIL SPRING MOUNTAIN WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION AND NO ACTION)

This alternative would recommend that the entire 17,740 acres of the Oil Spring Mountain WSA (see Map 2-30) not be designated wilderness. The WSA would be managed as described in the following sections.

Grazing Management

Authorization of grazing use within the WSA would remain at the current level of 780 AUMs. New range improvement projects to improve livestock distribution (shown on Map 2-31), such as building five stock reservoirs and developing a cattle trail out of Texas Creek, are not expected to increase AUMs in the long term. Existing range improvements (shown on Map 2-32), consisting of five improved springs with earthen dugout pits and seven earthen stock ponds, would continue to receive maintenance by the individual grazing permittees through provisions of the grazing permit or cooperative agreement under which each project was authorized. Use of motorized vehicles or equipment would be allowed where topography permits.

Recreation Management

Under this alternative, 17,740 acres of the Oil Spring Mountain WSA would be managed to provide a predominantly natural setting with a total use of 650 visitor days per year. Current recreation uses are estimated to be about 550 visitor days per year, most of which occur during hunting season. Motorized hunting use is estimated to be about 100 visitor days per year. Nonmotorized use levels (450 visitor days per year) are not expected to change under this alternative. Off-road vehicle use would increase to about 200 visitor days (as a result of access roads provided by oil and gas development). Access to the WSA is provided by a series of roads which form almost the entire boundary. No visitor facilities, such as parking areas or campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 17,740 acres of the Oil Spring Mountain WSA would be open to motorized vehicle use under this alternative.

Minerals Management

Oil and Gas

All 17,740 acres of the WSA would be kept open for oil and gas leasing. Standard lease stipulations would be attached to each lease. Operational stipulations would be site-specifically applied to each permit granted under a lease.

Oil and gas lease operations would resume in a manner similar to the rest of the Douglas Creek Arch development. Up to 95 wells, with associated roads and pipelines (a total of up to 400 acres of surface disturbance), would be built in the WSA as part of the larger Douglas Creek Arch development (Map 2-33).

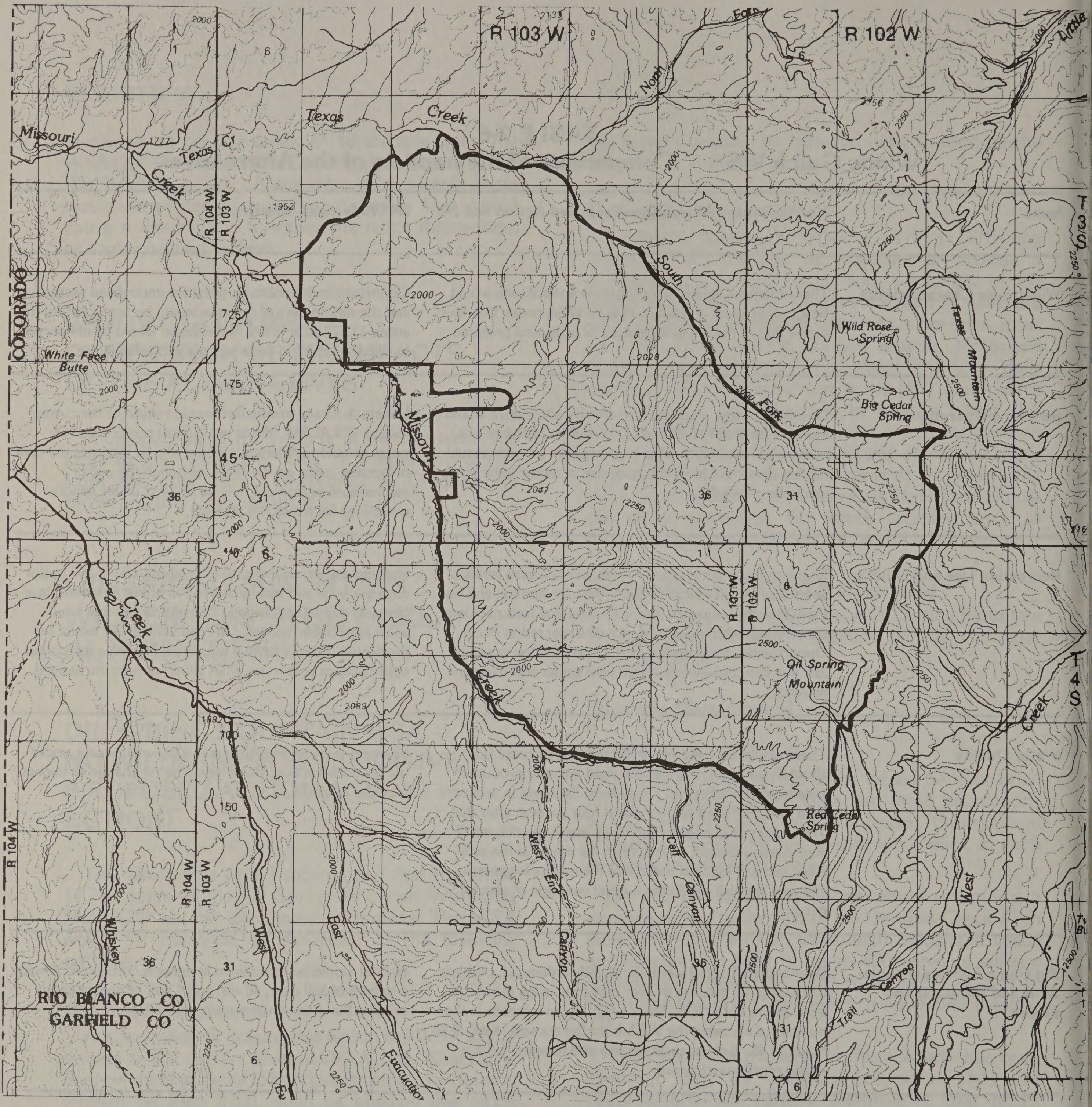
The location of the wells in this scenario has been assumed only for analysis purposes. They are representative of surface disturbance that might reasonably occur. Actual location and spacing of the wells may differ from those shown on Map 2-33.

Other Minerals

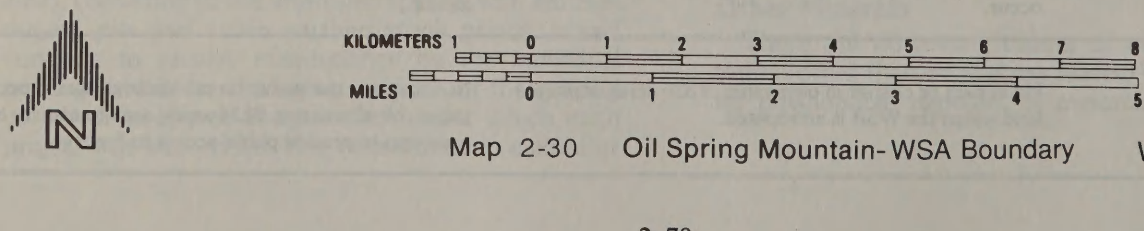
There are no mining claims or other pre-existing rights (other than oil and gas leases) within the WSA; no developable deposits of minerals are known to

TABLE 2-6
Windy Gulch WSA - Comparison of the Impacts of the Alternatives

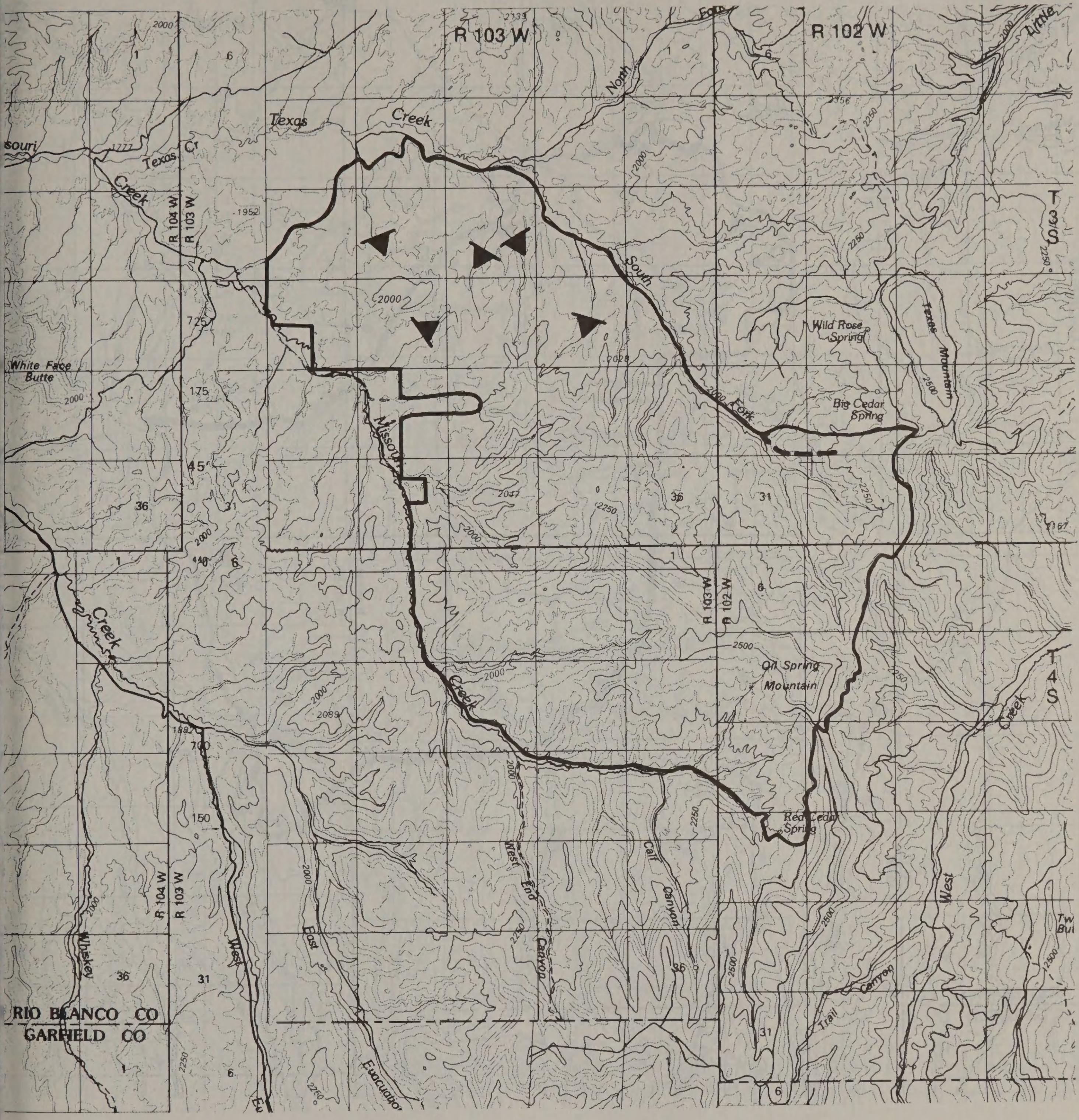
Issue	No Wilderness Alternative (Proposed Action and No Action)	All Wilderness Alternative
Wilderness Characteristics	The wilderness values of naturalness and solitude would be lost over most of the 12,274 acre WSA under this alternative due to the impairing nature of proposed projects.	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on the entire 12,274 acre WSA. Naturalness would be enhanced by allowing existing ways and trails to rehabilitate.
Ranching Operations	Livestock forage production under this alternative would increase from 879 AUMs to 1,071 AUMs. Maintenance costs associated with range improvement projects would remain at current levels because use of motor vehicle use would be allowed.	Livestock forage production would remain at the current level of 879 AUMs. Motor vehicle use restrictions for range project maintenance would slightly increase the cost of keeping cattle on the WSA, although the use of mechanized equipment may be allowed under specific conditions for individual projects.
Recreation Use and Quality	Recreation use is expected to remain at current levels of about 250 to 300 visitor days per year for hunting and less than 30 visitor days per year for hiking and backpacking. No off-road vehicle use is known or expected to occur. Opportunities for primitive forms of recreation would be lost due to activities associated with range improvement projects.	Hunting use would increase from about 450 to 500 visitor days per year and hiking/backing to about 80 visitor days per year due to acquisition of a right-of-way that would allow legal public access. Off-road vehicle use would be prohibited (none is known to occur). Primitive recreation opportunities within the WSA would remain unchanged.
Water Quality	There would be a short-term 26 percent increase (for about three years) in sediment yield and and produced salts from the WSA and a long-term decrease in sediment yield and produced salts of about four percent after that. The impact or change would be an immeasurably small short-term increase, or long-term decrease, in the sediment and salt loads of the White River. The long-term changes are well within the natural variation of about 25 percent.	Since no surface disturbing activities would occur under the proposed action, there would be no change or impact to water quality.
Big Game Species (Populations and Habitats) and Eagles	Deer and elk habitat would be slightly enhanced, perhaps increasing the number of deer currently using the WSA from 350 to about 375. There could be an increase in the number of elk using the WSA from the current levels of 40 to about 45. Golden eagle nesting and foraging habitat would remain unchanged.	Habitat would be maintained in present conditions. Animal numbers of 350 deer, 40 elk, and 4 pair of golden eagles utilizing the area would remain unchanged.
Mineral Exploration and Production	The WSA would be open to leasing and mining claims, however, no mineral exploration or development is anticipated. Hence, no impact to mineral resources would occur.	There would be no impacts on producible mineral resources from wilderness designation, since none are known to exist. No additional subsurface geologic data would be gained.
Private Lands	No impact or change in ownership of 320 acres of private land within the WSA is anticipated.	No change in ownership on private lands would occur under this alternative. BLM would seek to acquire an easement to provide public access to the area.



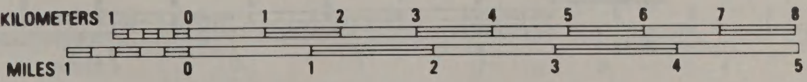
OIL SPRING MOUNTAIN



Map 2-30 Oil Spring Mountain- WSA Boundary WSA Boundary ——



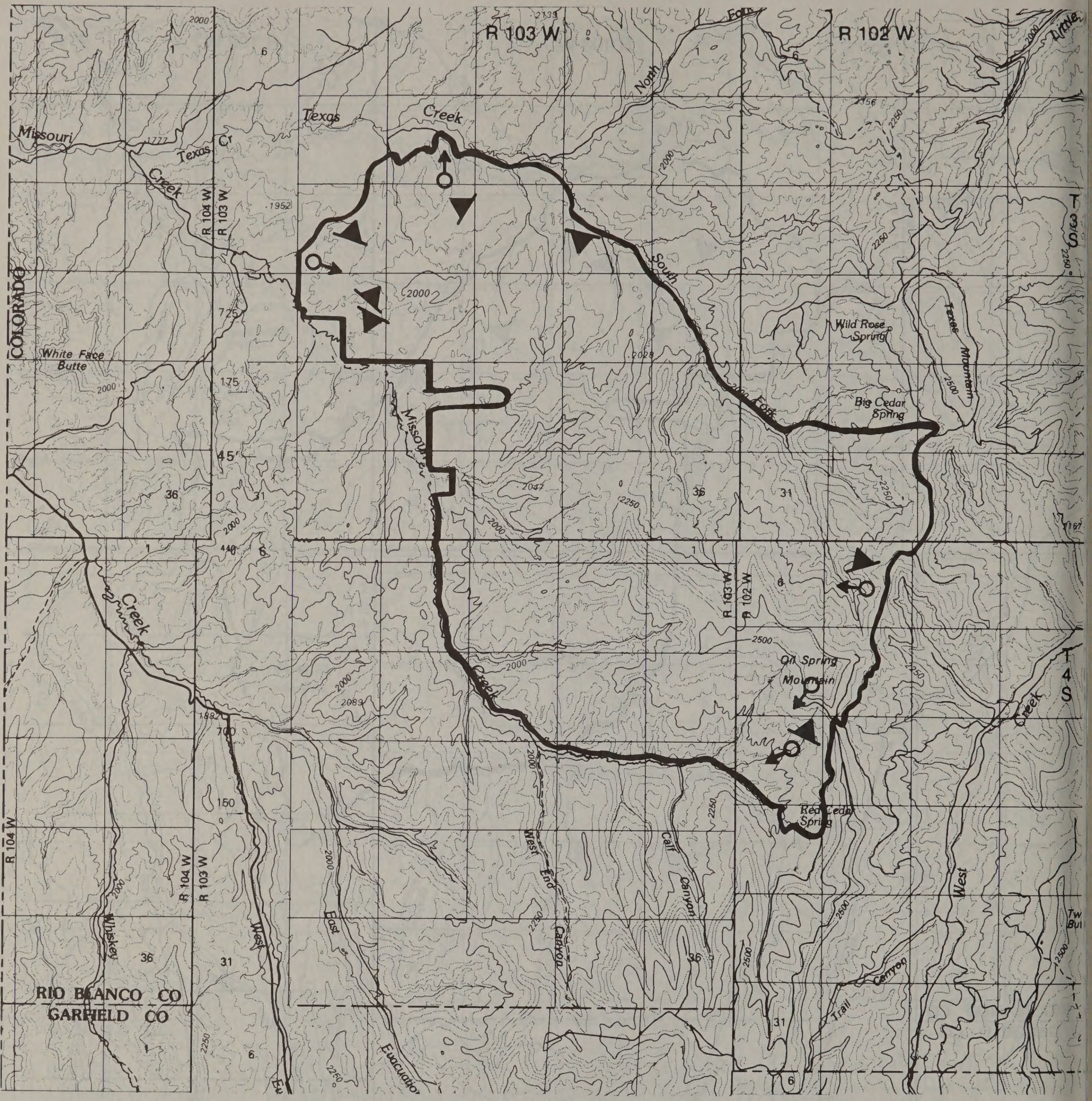
OIL SPRING MOUNTAIN



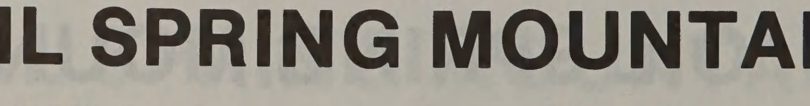
Map 2-31. Oil Spring Mountain - Proposed Range Improvements

Cattle Trail — — —

Stock Pond ▶



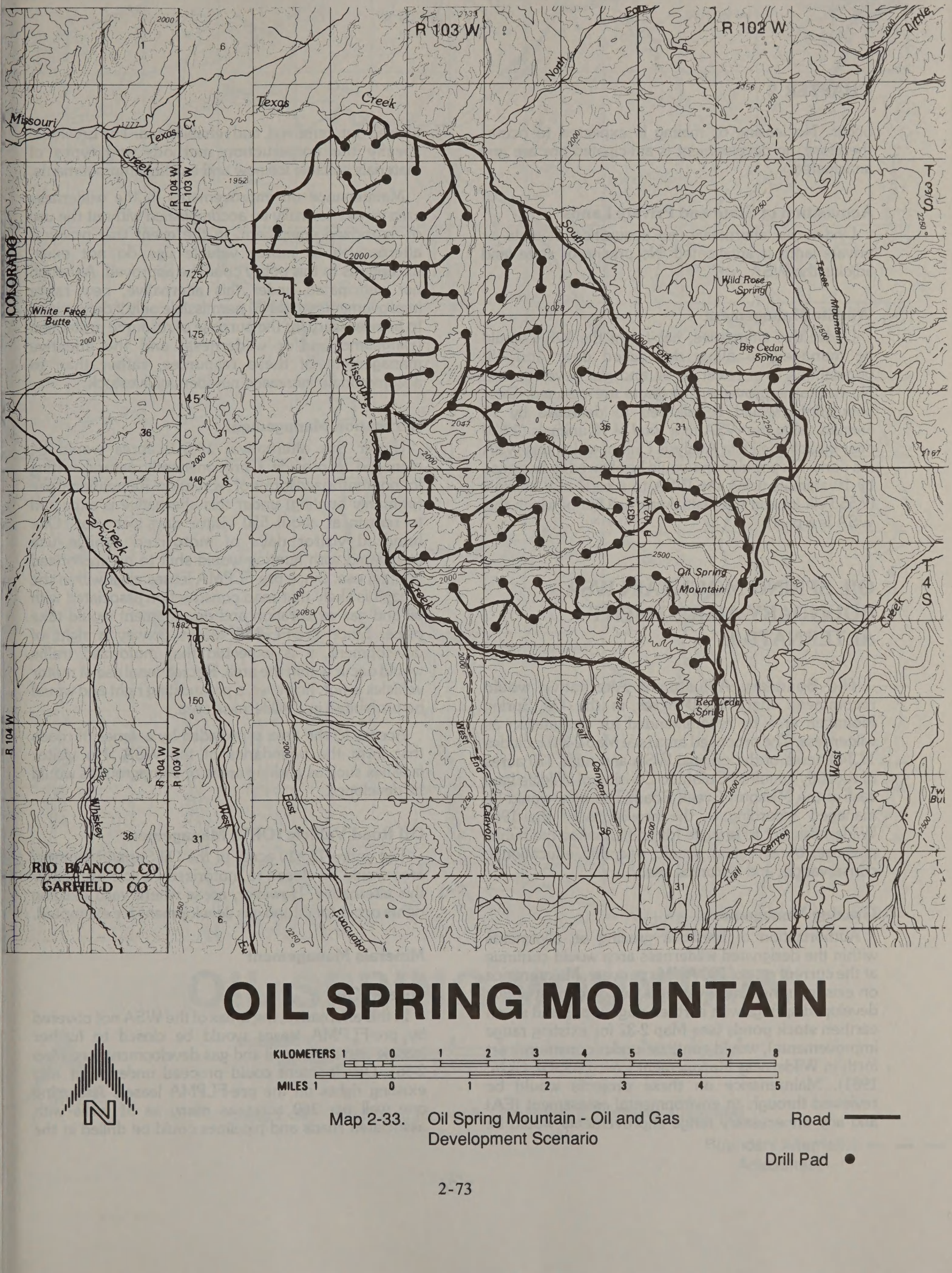
OIL SPRING MOUNTAIN



Map 2-32. Oil Spring Mountain - Existing Range Improvements

Stock Pond ▶

Springs ←○



Map 2-33. Oil Spring Mountain - Oil and Gas Development Scenario

Road ——

Drill Pad ●

occur. No leasing or mining is expected to occur; therefore, no development is anticipated nor are any anticipated.

Acquisition of State and Private Lands

Under this alternative, no acquisition of state or private lands is anticipated. No private or state land adjoins the WSA.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow decreased deer and elk populations as a result of oil and gas development. No habitat improvement projects are planned. Deer populations would be allowed to decrease by 75 animals using the WSA to a total of 75 animals (9,620 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to decrease by 10 animals using the WSA to a total of 9 animals (2,550 elk inhabit the Data Analysis Unit of which this WSA is a part).

OIL SPRING MOUNTAIN WSA - BOUNDARY ADJUSTMENT ALTERNATIVE

The Boundary Adjustment Alternative would recommend that 18,510 acres in the Oil Spring Mountain area be recommended for designation as wilderness. The proposed area (see Map 2-34) includes 17,740 acres of the original WSA and adds 770 acres of recently acquired Colorado Division of Wildlife land east of the Missouri Creek Road. The area would be managed according to the provisions of the 1964 Wilderness Act to provide for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 780 AUMs per year. Maintenance on existing range improvements, which consist of five developed springs with earthen dugout pits and seven earthen stock ponds (see Map 2-32 for existing range improvements), would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981). Maintenance on these projects would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out, removed, and rehabilitated. The EA would specify the construction methods and types of materials suitable for new and existing improvements.

Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicle use do not exist, exceptions to this policy could be approved. Although not anticipated under this alternative, new range improvements would be permissible only if determined to be necessary for the purpose of resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, 18,510 acres would be managed to provide a predominantly natural setting for nonmotorized forms of recreation. Recreational use (primarily hunting) under this alternative is expected to remain at about 550 visitor days per year. One hundred visitor days of motorized vehicle use associated with hunting would shift to nonmotorized hunting use. Since pre-FLPMA leases exist within the area, it is likely that road construction associated with oil and gas exploration and development would take place. Since pre-FLPMA leases convey a right of development, it is expected that motorized traffic would occur within the area. Recreational use of motor vehicles is not, however, a pre-existing right and would be prohibited in a wilderness area.

Access to the area is provided by a series of roads that form the boundaries of the WSA. No visitor facilities such as parking areas or campgrounds would be developed.

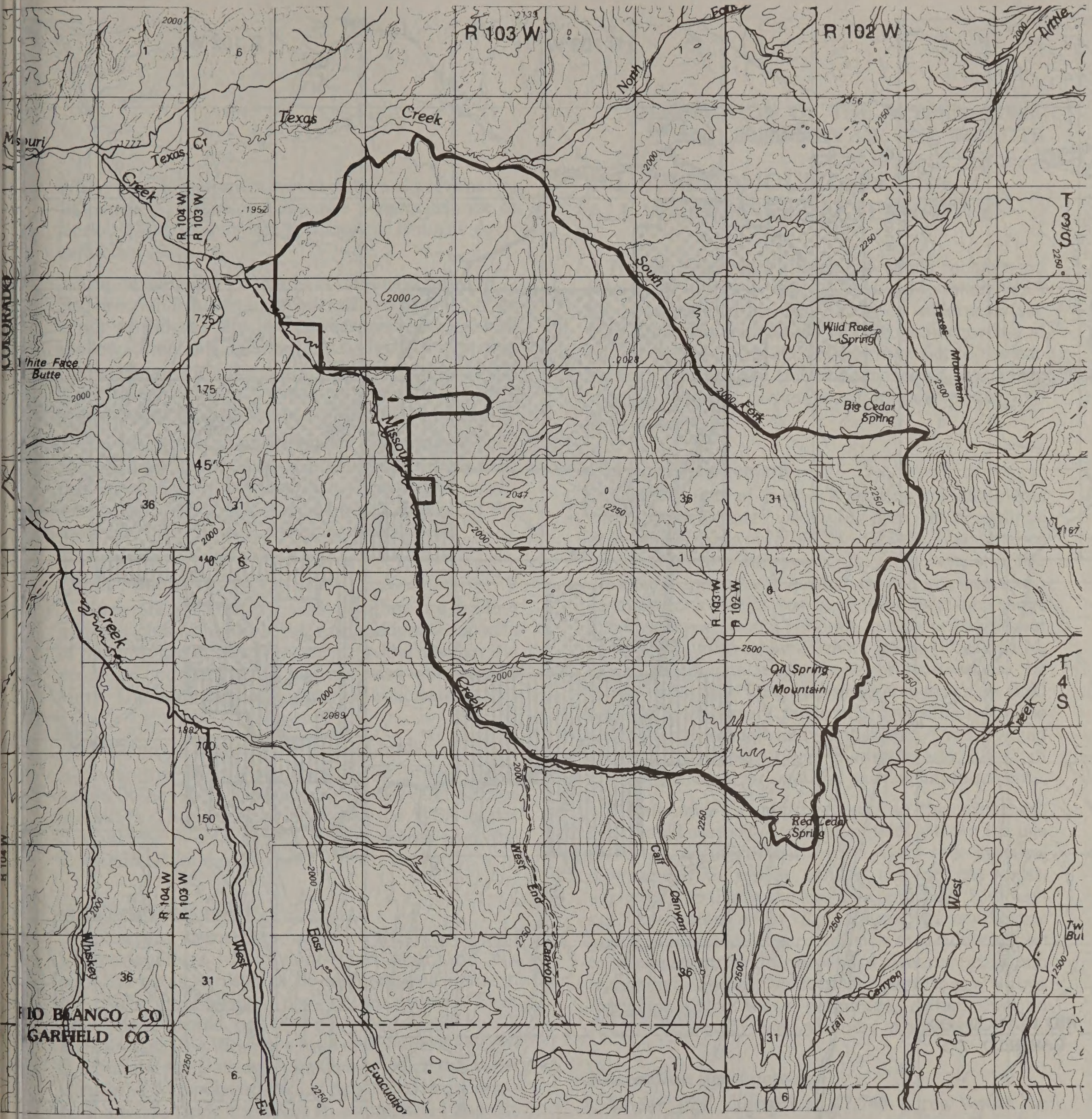
Off Road Vehicle (ORV) Management

The entire 18,510 acres of the Oil Spring Mountain area would be closed to motorized vehicle use under this alternative. However, areas where valid existing rights occur for oil and gas development are exempted.

Minerals Management

Oil and Gas

In this alternative, the areas of the WSA not covered by pre-FLPMA leases would be closed to further leasing and surface oil and gas development (see Map 2-35). Development could proceed under prior and existing rights on the pre-FLPMA leases. Assuming one well per 160 acres as many as 51 wells with associated roads and pipelines could be drilled in the



OIL SPRING MOUNTAIN

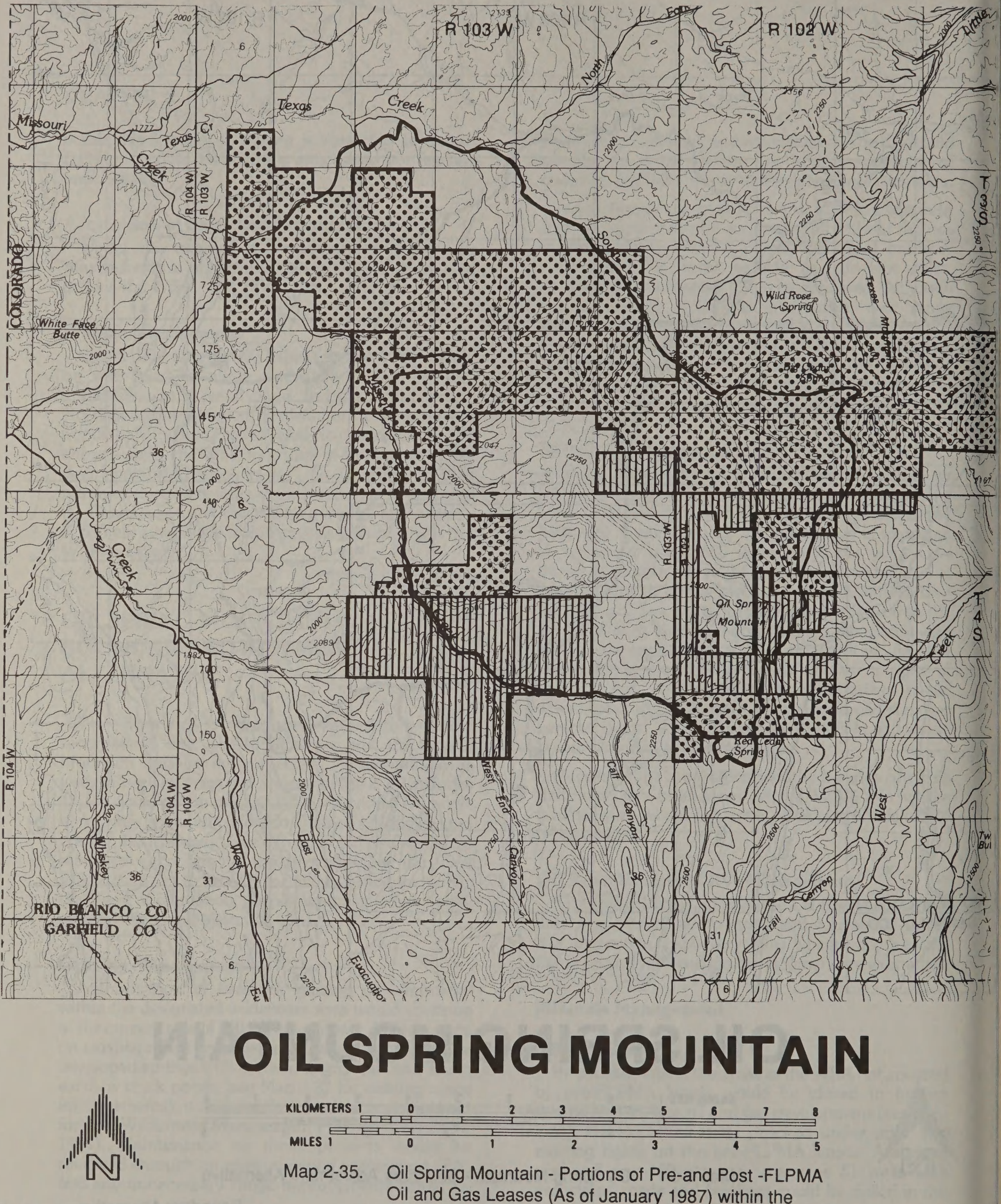
N

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

Map 2-34 Oil Spring Mountain - Boundary Adjustment Alternative

Boundary Alternative — — —
Adjustment



Map 2-35. Oil Spring Mountain - Portions of Pre-and Post -FLPMA Oil and Gas Leases (As of January 1987) within the Oil Spring Mountain WSA

Pre-FLPMA Leases ▨

Post-FLPMA Leases ▥

WSA. This development would disturb approximately 182 acres. This analysis assumes a reoccurrence of market conditions similar to those on Douglas Arch in the late 1970s.

The development scenario is displayed on Map 2-36. Directional drilling to recover oil and gas resources is not considered effective or reasonable because of shallow formations, faulting, and technical limitations. No development of the post-FLPMA leases, on which no-surface-occupancy stipulations would be in effect, is anticipated through the use of directional drilling.

The location of the wells in this scenario has been assumed only for analysis purposes. They are representative of surface disturbance that might reasonably occur. Actual location and spacing of the wells may differ from that shown on Map 2-36.

Other Minerals

There are no mining claims or other pre-existing mineral rights within the WSA; no developable deposits of minerals are known to occur. The lands within the proposed boundary would be withdrawn from mineral entry. Therefore, no development is anticipated.

Acquisition of State and Private Lands

Under this alternative, no state or private lands would be acquired. No state or private land adjoins the WSA. The 770 acres added to the WSA under this alternative have already been acquired from the Colorado Division of Wildlife.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow decreased deer and elk populations as a result of oil and gas development. No habitat improvement projects are planned. Deer populations would be allowed to decrease by 33 animals using the WSA to a total of 117 animals (9,620 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to decrease by 5 animals using the WSA to a total of 14 animals (2,550 elk inhabit the Data Analysis Unit of which this WSA is a part). Areas near golden eagle nests would be protected from any activities that would cause a disturbance to either the nests themselves, or eagles nesting in them.

OIL SPRING MOUNTAIN WSA - ALL WILDERNESS ALTERNATIVE

The All Wilderness Alternative would recommend that 17,740 acres in the Oil Spring Mountain WSA be recommended for designation as wilderness (see Map 2-30). The area would be managed according to the provisions of the 1964 Wilderness Act to provide for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

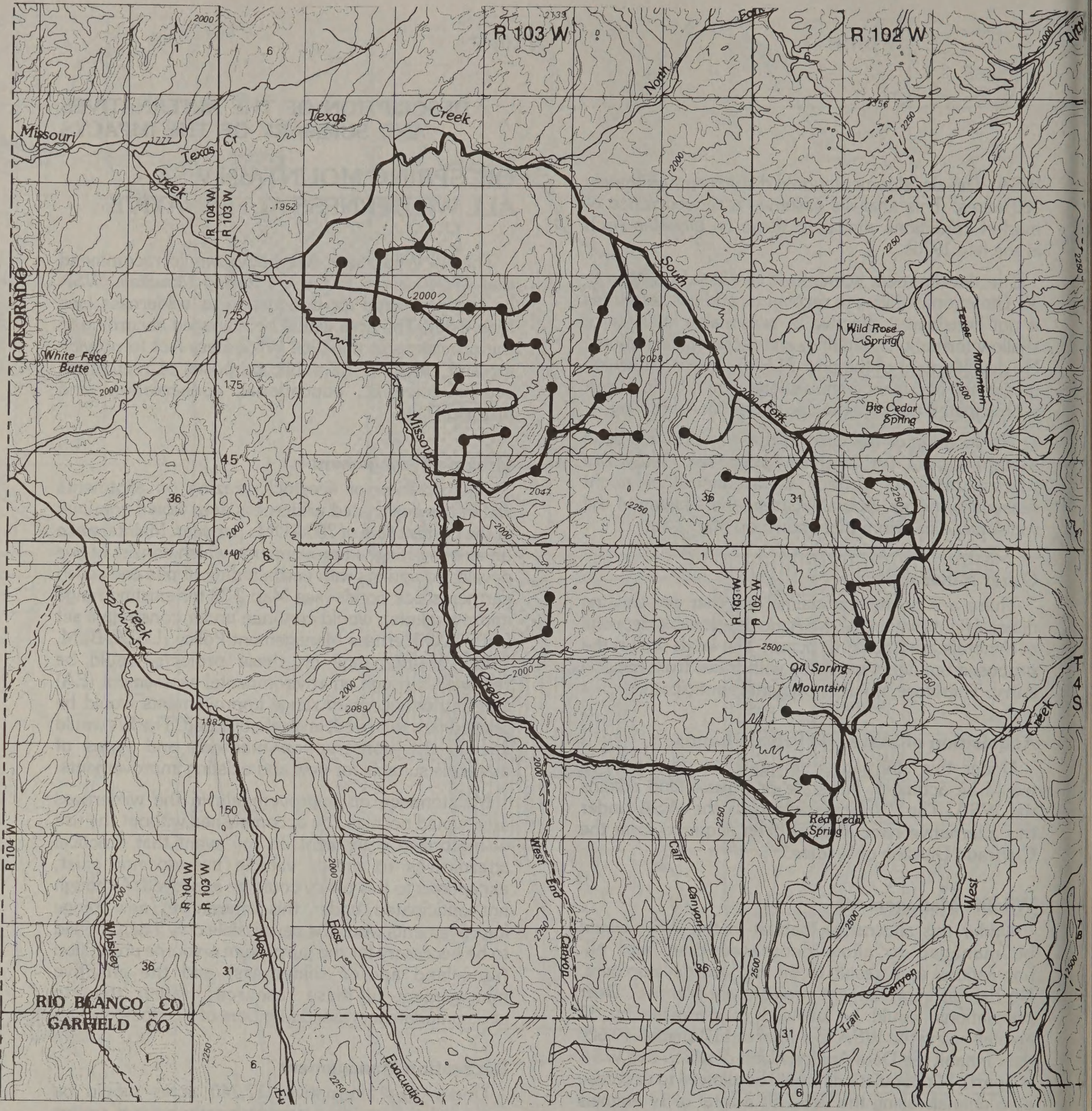
Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness area would continue at the current rate of 780 AUMs per year. Maintenance on existing range improvements, which consist of five developed springs with earthen dugout pits and seven earthen stock ponds (see Map 2-32 for existing range improvements), would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981). Maintenance on these projects would be reviewed through an environmental assessment (EA) and any unnecessary range improvements would be phased out, removed, and rehabilitated. The EA would specify the construction methods and types of materials suitable for new and existing improvements.

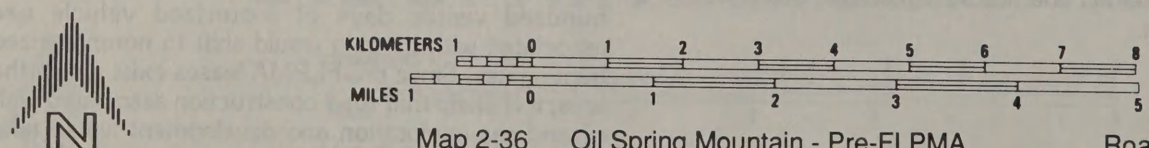
Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicle use do not exist, exceptions to this policy could be approved. Although not anticipated under this alternative, new range improvements would be permissible only if determined to be necessary for the purpose of resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, 17,740 acres would be managed to provide a predominantly natural setting for nonmotorized forms of recreation. Recreational use (primarily hunting) under this alternative is expected to remain at about 550 visitor days per year. One hundred visitor days of motorized vehicle use associated with hunting would shift to nonmotorized hunting use. Since pre-FLPMA leases exist within the area, it is likely that road construction associated with oil and gas exploration and development would take place. Since pre-FLPMA leases convey a right of



OIL SPRING MOUNTAIN



Map 2-36 Oil Spring Mountain - Pre-FLPMA Oil and Gas Development Projections

Road ———

Drill Pad ●

development, it is expected that motorized traffic would occur within the area. Recreational use of motor vehicles is not, however, a pre-existing right and would be prohibited in a wilderness area.

Access to the area is provided by a series of roads that form the boundaries of the WSA. No visitor facilities such as parking areas or campgrounds would be developed.

Off Road Vehicle (ORV) Management

The entire 17,740 acres of the Oil Spring Mountain WSA would be closed to motorized vehicle use under this alternative. However, areas where valid existing rights occur for oil and gas development are exempted.

Minerals Management

Oil and Gas

In this alternative, the areas of the WSA not covered by pre-FLPMA leases would be closed to further leasing and surface oil and gas development (see Map 2-36). Development could proceed under prior and existing rights on the pre-FLPMA leases. Assuming one well per 160 acres as many as 51 wells with associated roads and pipelines could be drilled in the WSA. This development would disturb approximately 182 acres. This analysis assumes a reoccurrence of market conditions similar to those on Douglas Arch in the late 1970s.

The development scenario is displayed on Map 2-33. Directional drilling to recover oil and gas resources is not considered effective or reasonable because of shallow formations, faulting, and technical limitations. No development of the post-FLPMA leases, on which no-surface-occupancy stipulations would be in effect, is anticipated through the use of directional drilling.

The location of the wells in this scenario has been assumed only for analysis purposes. They are representative of surface disturbance that might reasonably occur. Actual location and spacing of the wells may differ from that shown on Map 2-33.

Other Minerals

There are no mining claims or other pre-existing mineral rights within the WSA; no developable deposits of minerals are known to occur. The lands within the proposed boundary would be withdrawn from mineral entry. Therefore, no development is anticipated.

Acquisition of State and Private Lands

Under this alternative, no state or private lands would be acquired. No state or private land adjoins the WSA. The 770 acres added to the WSA under this alternative have already been acquired from the Colorado Division of Wildlife.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow decreased deer and elk populations as a result of oil and gas development. No habitat improvements are planned. Deer populations would be allowed to decrease by 33 animals using the WSA to a total of 117 animals (9,620 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to decrease by 5 animals using the WSA to a total of 14 animals (2,550 elk inhabit the Data Analysis Unit of which this WSA is a part).

OIL SPRING MOUNTAIN WSA - COMPARISON OF THE IMPACTS OF THE ALTERNATIVES

A comparison of the impacts of the alternatives is presented in Table 2-7. This is a summary drawn from the conclusions presented in Chapter 4 - Environmental Consequences.

TROUBLESOME WILDERNESS STUDY AREA ALTERNATIVES

TROUBLESOME WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION AND NO ACTION)

The proposed action would recommend that the entire 8,250 acres of the Troublesome WSA not be designated wilderness (see Map 2-37 WSA Boundary).

Forest Management

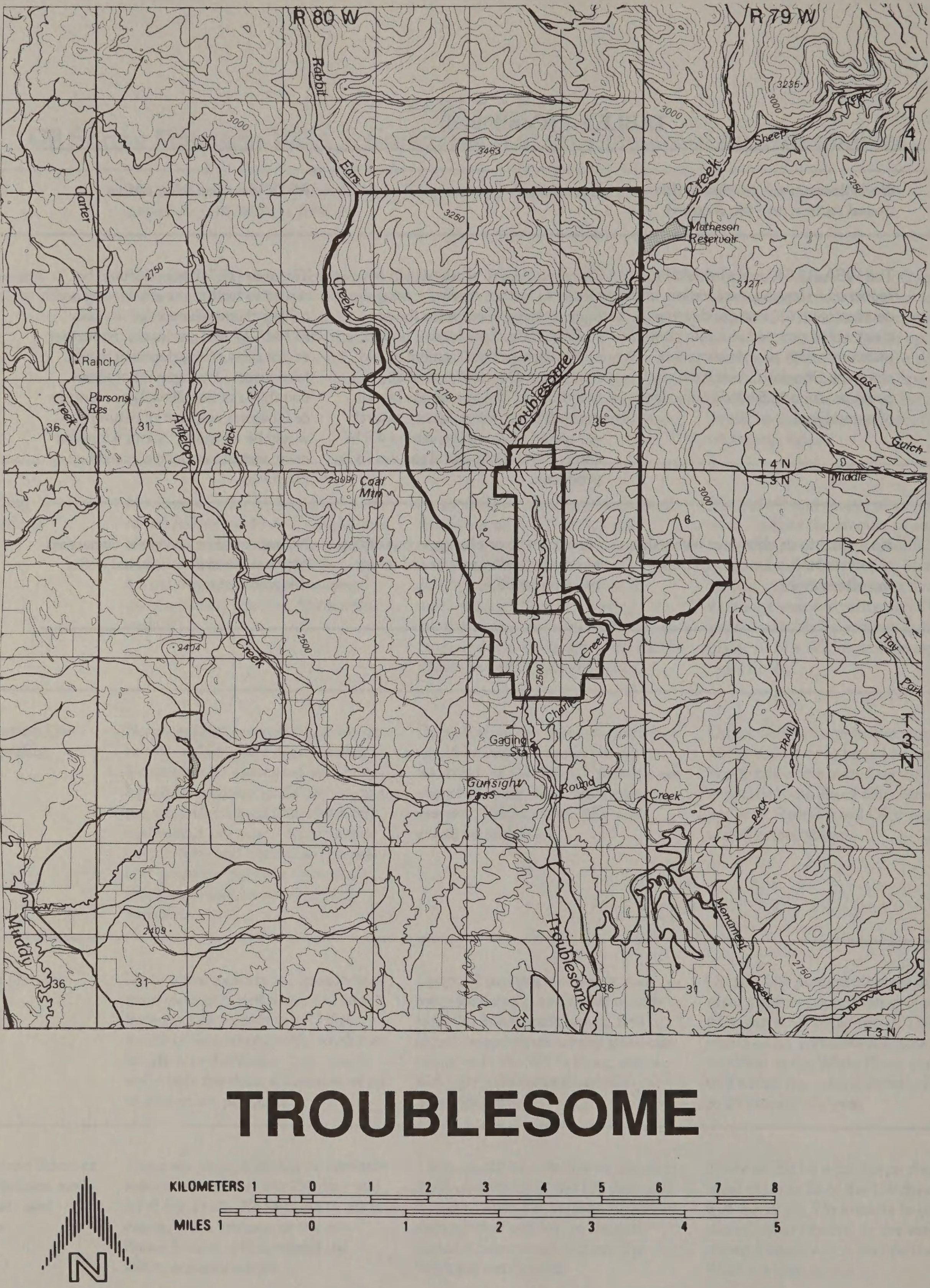
Under the No Wilderness Alternative, 363 acres of lodgepole pine and aspen would be harvested over the next 20 to 30 years out of a total manageable area of 1,872 acres (see Map 2-38 Proposed Timber

TABLE 2-7
Oil Spring Mountain WSA - Comparison of the Impacts of the Alternatives

Issues	No Wilderness Alternative (Proposed Action and No Action)	Boundary Adjustment Alternative	All Wilderness Alternative
Wilderness Characteristics	The wilderness values of naturalness, solitude, and primitive and unconfined recreation would be lost over the entire 17,740 acres WSA due to oil and gas development, range improvement projects, and increased off-road vehicle use.	Wilderness values of naturalness, outstanding opportunities for solitude, and primitive and unconfined recreation would be lost on up to two-thirds of the 18,510 acre WSA due to mineral exploration and development. The remainder of the area would be managed to protect these wilderness values.	Wilderness values of naturalness, and outstanding opportunities for solitude, and primitive and unconfined recreation would be lost on up to two-thirds of the 17,740 acre WSA due to mineral exploration and development. The remainder of the area would be managed to protect these wilderness values.
Ranching Operations	No change in use of the current level of 780 AUMs would occur under this alternative. However, up to 40 AUMs of the available forage potential could be lost due to oil and gas development activities affecting 400 acres of surface.	Mineral (oil and gas) exploration and development would reduce the amount of available forage by about one percent from the current level of 780 AUMs. Motor vehicle use for maintenance of existing range improvements would be restricted to those projects qualifying under BLM's Wilderness Management Policy.	Mineral (oil and gas) exploration would reduce the amount of available forage by about one percent from the current level of 780 AUMs. Motor vehicle use for maintenance of existing range improvements would be restricted to those projects qualifying under BLM's Wilderness Management Policy.
Recreation Use and Quality	Nonmotorized recreation use would remain at 450 visitor days per year. Motorized use associated with hunting would increase to 200 visitor days per year. Use would total about 650 visitor days per year. Opportunities for primitive and unconfined recreation would be lost over the entire WSA as a result of development activities.	Opportunities for primitive recreation would be lost or lessened on up to two-thirds of the WSA. Use levels are expected to be about 550 visitor days per year. Recreational ORV use would be prohibited.	Opportunities for primitive recreation would be lost or lessened on up to two-thirds of the area. Use levels are expected to be about 550 visitor days per year. Recreational ORV use would be prohibited.
Water Quality	Up to a four percent increase in sediment yield and contribution of salts from the WSA could result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of up to 25 percent per year.	Up to a 2 percent increase in sediment yield and contribution of salts from the WSA could result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of about 25 percent.	Up to a two percent increase in sediment yield and contribution of salts from the WSA could result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of up to 25 percent per year.
Big Game Species (Populations and Habitat) and Eagles	There would be a decline or displacement of up to 75 of the 150 deer and 10 of the 19 elk. No impacts to golden eagles, other raptors, or the estimated 5 bears which inhabit the WSA, are anticipated.	There would be a decline or displacement of up to 33 of the 150 deer and 5 of the 19 elk. No impacts to golden eagles, other raptors, or the estimated 5 bears which occupy the WSA are anticipated.	There would be a decline or displacement of up to 33 of the 150 deer and 5 of the 19 elk. No impacts to golden eagles, other raptors, or the estimated 5 bears which occupy the WSA are anticipated.

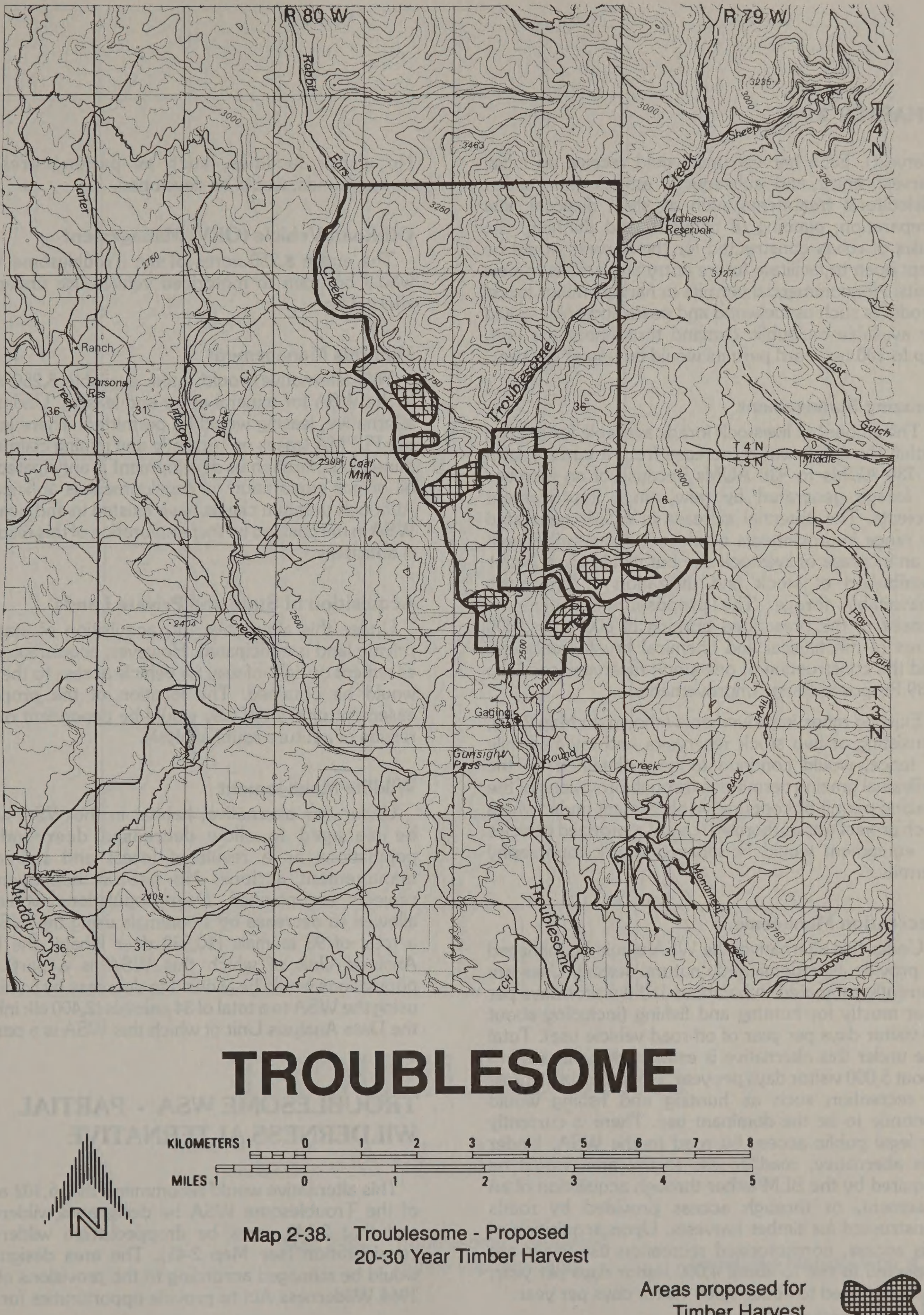
TABLE 2-7 (Continued)

sues	No Wilderness Alternative (Proposed Action and No Action)	Boundary Adjustment Alternative	All Wilderness Alternative
ineral Explora- on and oduction	The WSA (17,740 acres) would be reopened to leasing, exploration, and development. Oil and gas development would proceed at a rate commensurate with new development along the Douglas Creek Arch, and could produce 12.5 billion cubic feet of natural gas.	The area (18,510 acres) would be closed to further mineral leasing and mining claims. Except for the pre-FLPMA oil and gas leases, no further exploration or development would take place. Development of about two-thirds of the oil and gas resources or 8 billion cubic feet of natural gas would be foregone. About 4.5 billion cubic feet of natural gas would be produced.	The area (17,740 acres) would be closed to further mineral leasing and mining claims. Except for the pre-FLPMA oil and gas leases, no further exploration or development would take place. Development of about two-thirds of the oil and gas resource or 8 billion cubic feet of natural gas would be foregone. About 4.5 billion cubic feet of natural gas could be produced.
rivate Lands	No impact to or change in ownership of private land is anticipated under this alternative.	No impact to or change in ownership of private land is anticipated under this alternative.	No impact to or change in ownership of private land is anticipated under this alternative.



Map 2-37. Troublesome - WSA Boundary

WSA Boundary ▬



Map 2-38. Troublesome - Proposed 20-30 Year Timber Harvest

Harvest). Each harvest unit would receive an initial harvest entry and subsequent entries for needed silvicultural treatments such as slash disposal, site preparation, planting (if needed), and thinning. Six miles of roads constructed for the harvest would be kept open to facilitate future entry and access to new units. Noncommercial permits to harvest minor forest products such as fuelwood and posts and poles would be available on public demand throughout the unit. Up to 100 two-cord permits would be issued per year.

Grazing Management

The amount of livestock forage available for grazing within the WSA would increase from a current level of 730 AUMs to 938 AUMs because of an increase of forage generated by new range improvement projects. The potential increase in AUMs generated by range improvements would not necessarily result in an increase of livestock use but would allow better distribution of stock and utilization of previously unavailable forage. The proposed improvements consist of the prescribed burning of 600 acres, 200 acres of mechanical and chemical brush treatment, and the construction of one stock reservoir (see Map 2-39 Proposed Range Improvements).

Existing range improvements (shown on Map 2-40), consisting of two stock reservoirs and one-half mile of fence, would continue to be maintained by the individual grazing permittees through provisions of the grazing permit or cooperative agreement under which each project was authorized. Use of motorized vehicles or equipment would be allowed where topography permits.

Recreation Management

Under this alternative, the WSA would be managed to provide a predominantly natural setting. Uses are currently estimated to be about 1,750 visitor days per year mostly for hunting and fishing (including about 10 visitor days per year of off-road vehicle use). Total use under this alternative is estimated to increase to about 5,000 visitor days per year. Nonmotorized forms of recreation such as hunting and fishing would continue to be the dominant use. There is currently no legal public access by road to the WSA. Under this alternative, road access to the area would be acquired by the BLM either through acquisition of an easement, or through access provided by roads constructed for timber harvests. Upon acquisition of this access, nonmotorized recreation use levels are expected to rise to about 4,000 visitor days per year, and motorized to about 1,000 visitor days per year. No visitor facilities, such as parking areas or campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 8,250 acres of the Troublesome WSA would be open to motorized vehicle use under this alternative.

Minerals Management

This alternative would make available 8,250 acres in the WSA for mineral entry and leasing. Under this alternative, leasing would be permitted. There are no pre-FLPMA leases or currently any mining claims. No mineral exploration or development is anticipated. No oil or gas exploration or development is anticipated. Although uranium claims have existed in and near the WSA in the past, no further exploration of this resource is anticipated.

Acquisition of State and Private Lands

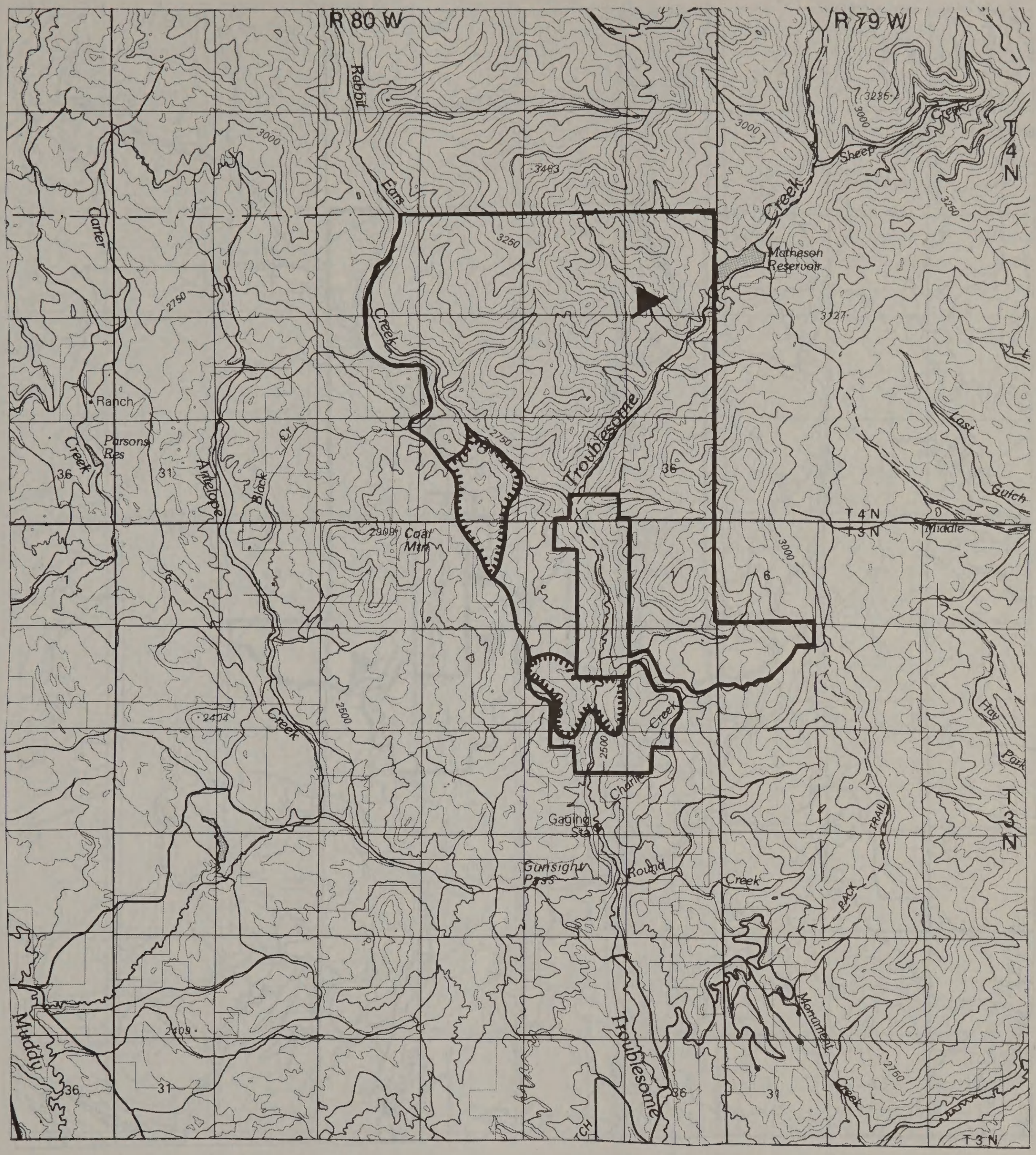
Under this alternative, no acquisition of state or private land is anticipated. However, acquisition of an easement or right-of-way for vehicle access to the area would be obtained. The location of the proposed easement or right-of-way would be dependent on the results of a future route analysis.

Wildlife Management

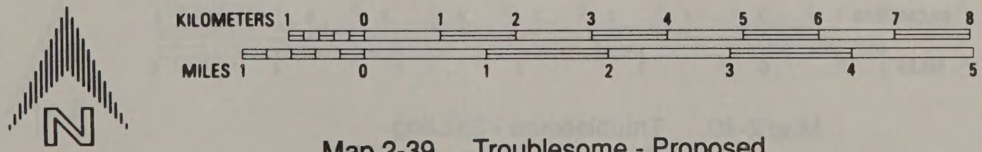
Under this alternative, habitat in the WSA would be managed to allow decreased deer and elk populations as a result of forest and recreation management actions. No habitat improvement projects are planned. Deer populations would be allowed to decrease by 17 animals using the WSA to a total of 98 animals (10,930 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to decrease by 6 animals using the WSA to a total of 34 animals (2,400 elk inhabit the Data Analysis Unit of which this WSA is a part).

TROUBLESOME WSA - PARTIAL WILDERNESS ALTERNATIVE

This alternative would recommend that 6,102 acres of the Troublesome WSA be designated wilderness and that 2,140 acres be dropped from wilderness consideration (see Map 2-41). The area designated would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and



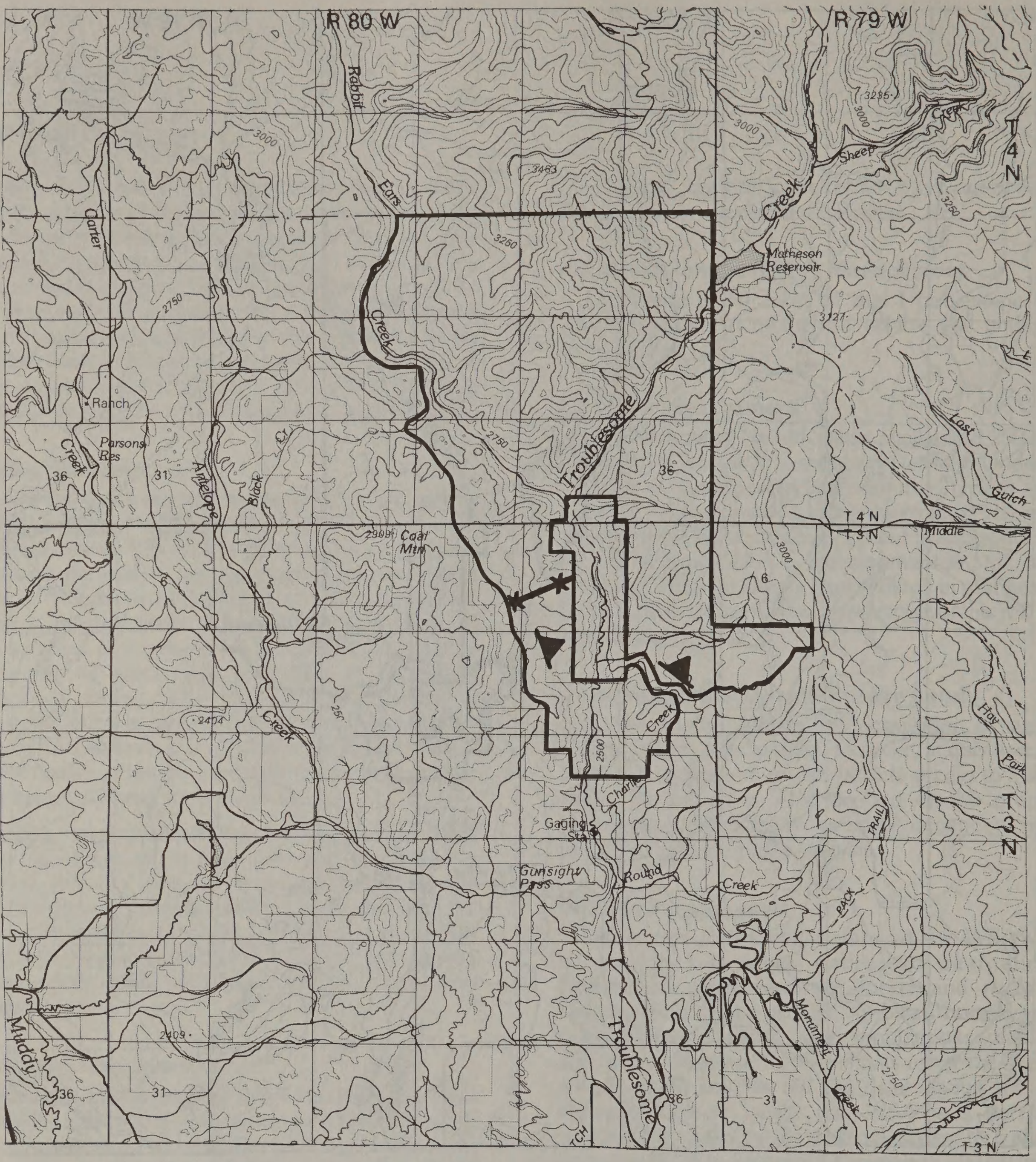
TROUBLESOME



Map 2-39. Troublesome - Proposed Range Improvements

Vegetative Manipulation

Stock Reservoir ▶

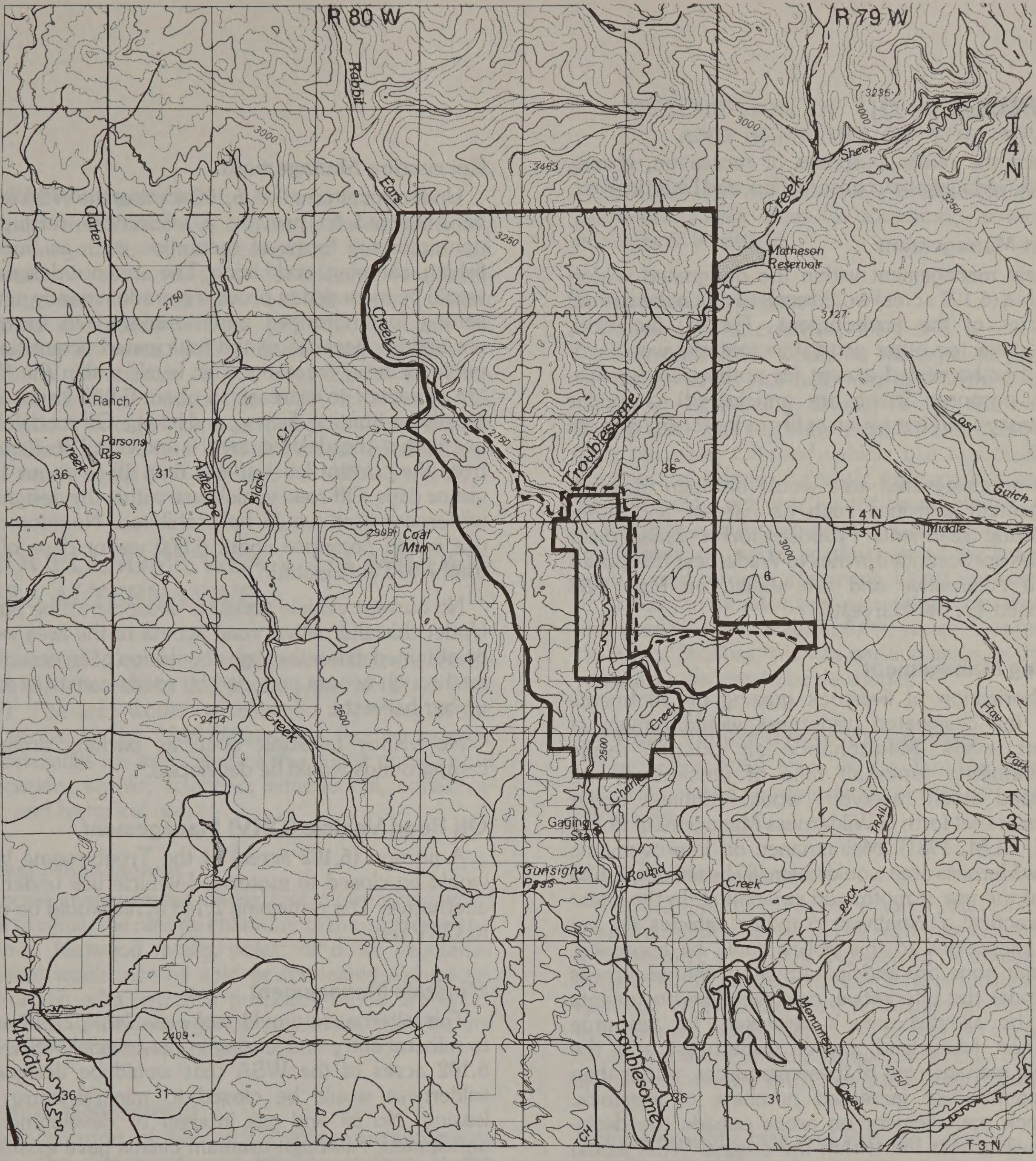


TROUBLESOME

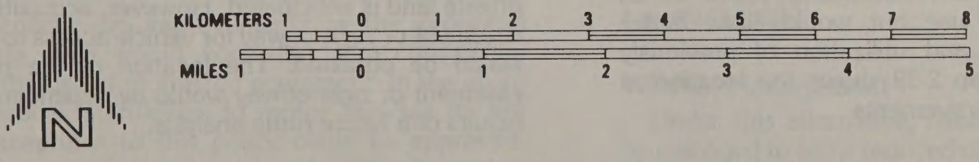
Map 2-40. Troublesome - Existing Range Improvements

Fence —X—X—X—

Stock Reservoir ▶



TROUBLESOME



Map 2-41. Troublesome - WSA and Partial Wilderness Boundary

WSA Boundary ———

Partial Wilderness Boundary — — — —

enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Forest Management

Forest management within the designated wilderness area (6,102 acres) would seek to retain the natural character of the environment. Timber, fuelwood, posts, poles, or other vegetative material would not be sold or harvested except for authorized administrative purposes (none are anticipated) or under emergency conditions such as fire or insect and disease control.

The nondesignated area would be open to forest management activities such as harvest and other silvicultural treatments. Proposed forest management activities are described in the No Wilderness (Proposed Action) Alternative and are shown on Map 2-38 (Proposed Timber Harvest).

Grazing Management

Authorization of livestock grazing on allotments within the designated wilderness would remain at current levels. Maintenance on existing range improvements (one-half mile of fence and one developed stock reservoir) would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981). Maintenance on improvements in the wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicles do not exist, exceptions to this policy could be approved. Although none are anticipated within the wilderness area under this alternative, new range improvements would be allowed only if necessary for resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock. Livestock management on areas outside the designated wilderness but within the original WSA would seek to raise the number of AUMs by 200 in the long term through burning 600 acres and chaining 200 acres of brush. The proposed construction of a stock reservoir would not be undertaken in this alternative. The potential increase in AUMs generated by range improvements would not necessarily result in an increase of livestock use but would allow better distribution of stock and utilization of previously unavailable forage. Map 2-39 shows the location of all proposed range improvements.

Recreation Management

Under this alternative, 6,102 acres of the WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation such as hunting, fishing, camping, and hiking. The area not designated would be managed to provide a predominantly natural setting for motorized and nonmotorized forms of recreation. Because of the anticipated acquisition of public access, recreation use levels within the WSA are expected to increase to about 7,000 visitor days mostly for hunting, fishing, and hiking. Off-road vehicle use within the deleted area is expected to increase from the current level of less than 10 to about 1,000 visitor days. Off-road vehicle use within the designated wilderness area would be prohibited. Nonmotorized use would comprise about 6,000 visitor days of the total 7,000 anticipated.

No current vehicle access is available to the public. Under this alternative, road access to the area would be obtained either through acquisition of an easement, or through access provided by roads constructed for timber harvests.

No visitor facilities, such as parking areas or campgrounds would be developed.

Off Road Vehicle (ORV) Management

A portion (6,102 acres) of the Troublesome WSA would be closed to motorized vehicle use under this alternative. The remaining 2,148 acres would be open to ORV use.

Minerals Management

This alternative would make available 2,148 acres to mineral entry and leasing in the original WSA. The 6,102 acres of the WSA that would be designated wilderness would be closed to mineral entry and leasing. No oil and gas interest or development is anticipated. Although uranium claims have existed in and near the WSA in the past, no further exploration of this resource is anticipated.

Acquisition of State and Private Lands

Under this alternative, no acquisition of state or private land is anticipated. However, acquisition of an easement or right-of-way for vehicle access to the area would be obtained. The location of the proposed easement or right-of-way would be dependent on the results of a future route analysis.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow decreased deer and elk populations as a result of forest and recreation management actions. No habitat improvement projects are planned. Deer populations would be allowed to decrease by 17 animals using the WSA to a total of 98 animals (10,930 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to decrease by 6 animals using the WSA to a total of 34 animals (2,400 elk inhabit the Data Analysis Unit of which this WSA is a part).

TROUBLESOME WSA - ALL WILDERNESS ALTERNATIVE

This alternative would recommend that the entire WSA (8,250 acres) be designated wilderness (see Map 2-37). The area would be managed according to the provisions of the 1964 Wilderness Act to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Forest Management

Forest management under this alternative would seek to retain the natural character of the environment. Timber, fuelwood, posts, poles, or other vegetative material would not be sold or harvested except for authorized administrative purposes (none are anticipated) or under emergency conditions such as fire or insect and disease control.

Grazing Management

Authorization of livestock grazing on allotments within the wilderness area would continue at the current rate of 730 AUMs per year. Maintenance on existing range improvements, which include one-half mile of fence and one stock reservoir (see Map 2-40), would continue under constraints set forth in Wilderness Management Policy (USDI, BLM, 1981).

Maintenance on improvements in the proposed wilderness area would normally be accomplished without the use of motorized equipment. In the event that practical alternatives to motor vehicles do not exist, exceptions to this policy could be approved. Although none are anticipated under this alternative, new range improvements would be allowed only if necessary for resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock.

Recreation Management

Under this alternative, all 8,250 acres of the Troublesome WSA would be managed to provide a wilderness setting for nonmotorized forms of recreation, such as hunting, fishing, hiking, and camping. Those uses are currently estimated at 1,740 visitor days per year. Off-road vehicle use associated with hunting and fishing, currently estimated at less than 10 visitor days per year, would be prohibited. Access to the area is not currently available by road. Under this alternative, public road access to the area would be acquired through easement. Upon the acquisition of access, nonmotorized recreation use levels are expected to increase about 6,000 visitor days per year. No visitor facilities, such as parking areas or primitive campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 8,250 acres of the Troublesome WSA would be closed to motorized vehicle use under this alternative.

Minerals Management

The 8,250 acres of federal mineral estate within the proposed wilderness would be withdrawn from further mineral entry or leasing. No leasing or mining would occur. Although uranium claims have existed in and near the WSA in the past, no further exploration of this resource is anticipated. No oil and gas exploration or development is anticipated. Currently, no mining claims exist on the WSA nor are any anticipated.

Acquisition of State and Private Land

Under this alternative, no acquisition of state or private land is anticipated. However, acquisition of an easement or right-of-way for vehicle access to the boundary of the wilderness area would be obtained. The location of the proposed easement or right-of-way would be dependent on the results of a future route analysis.

Wildlife Management

Under this alternative, habitat in the WSA would be managed to allow reduced deer and elk populations as a result of recreation management actions. No habitat improvement projects are planned. Deer populations would be allowed decrease by 11 animals using the WSA to a total of 104 animals (10,930 deer inhabit the Data Analysis Unit of which this WSA is a part). Elk populations would be allowed to decrease by 4 animals using the WSA to a total of 36 animals (2,400 elk inhabit the Data Analysis Unit of which this WSA is a part).

TROUBLESOME WSA - COMPARISON OF THE IMPACTS OF THE ALTERNATIVES

A comparison of the impacts of the alternatives is presented in Table 2-8. This is a summary drawn from the conclusions presented in Chapter 4 - Environmental Consequences.

PLATTE RIVER CONTIGUOUS WILDERNESS STUDY AREA ALTERNATIVES

PLATTE RIVER CONTIGUOUS WSA - ALL WILDERNESS ALTERNATIVE (PROPOSED ACTION)

The proposed action would recommend that the entire WSA (30 acres) be designated wilderness (see Map 2-42 WSA Boundary). The area would be managed as an addition to the contiguous 23,000 acre USDA Forest Service Platte River Wilderness, and according to the provisions of the 1964 Wilderness Act, to provide opportunities for and enhance the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Grazing Management

Authorization of livestock grazing on the State Line Ranch allotment which includes the WSA would continue; however, the 30 acre WSA is either too rocky or steep to provide any AUMs for livestock grazing purposes. No range improvement projects exist, are proposed or anticipated, and none would be allowed under this alternative. No fences exist in the WSA, so no maintenance of fences would be required.

Recreation Management

The Platte River Contiguous WSA provides a setting for primitive nonmotorized forms of recreation. This 30 acres of public land includes a portion of the North Gate Canyon which is popular for whitewater floatboating and trout fishing on the North Platte River. Although the WSA does not include a segment of the river, it does include the backdrop landscape which supports a primitive setting for the USDA Forest Service 23,000 acre Platte River Wilderness. Recreational activities which do occur within the WSA include hiking, hunting, climbing, and camping. Use is estimated at 10 visitor days per year due to limited public vehicle access which requires permission to cross through adjacent private land. Under this alternative, the existing nonmotorized uses would be encouraged. Views from the adjacent USDA Forest Service Platte River Wilderness of the WSA (including a portion of the North Gate Canyon landscape and viewshed) would be protected by legislation. No visitor facilities, such as parking areas or primitive campgrounds, would be developed.

Off Road Vehicle (ORV) Management

The entire 30 acres of the WSA would be closed to motorized vehicle use under this alternative. (No use presently occurs.)

Minerals Management

This alternative would make 30 acres in the WSA unavailable for mineral entry and leasing. Under this alternative, leasing or mineral entry would not be permitted. There are no pre-FLPMA leases or currently any mining claims in the WSA. No mineral exploration or development would be allowed.

Acquisition of State and Private Lands

Under this All Wilderness Alternative, no acquisition of state or private lands is anticipated.

Wildlife Management

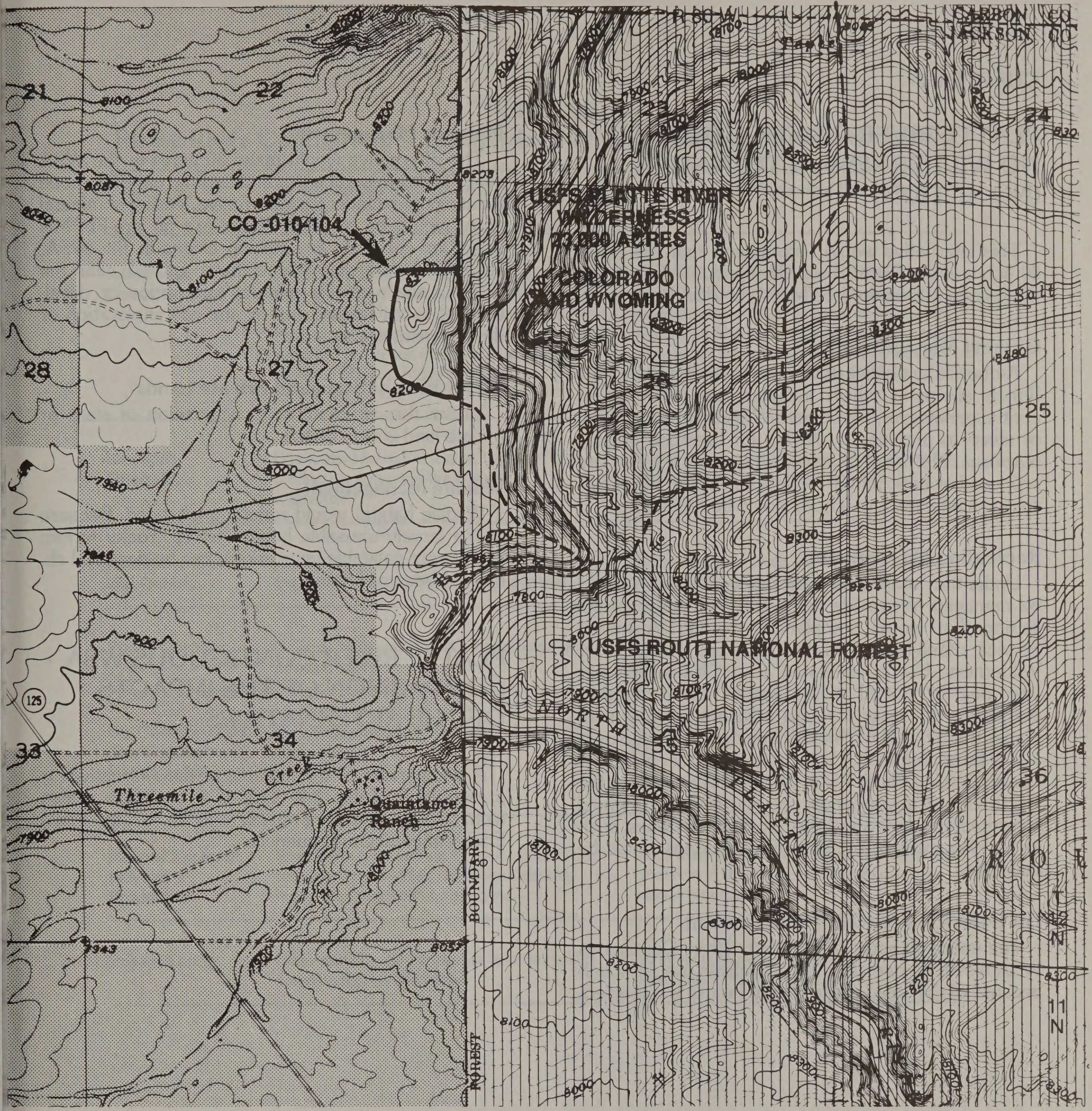
Wildlife habitat would remain unchanged. Because of the largely unusable habitat (steep, rocky terrain and sparse palatable vegetation), use by deer and elk has not been estimated.

TABLE 2-8
Troublesome WSA - Comparison of the Impacts of the Alternatives

Issue	No Wilderness Alternative (Proposed Action and No Action)	Partial Wilderness Alternative	All Wilderness Alternative
Wilderness Characteristics	Under the No Wilderness Alternative, the wilderness values of solitude and naturalness would be lost on about 2,148 acres through forest management activities, range improvement projects, and off-road vehicle use.	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 6,102 acres under this alternative. Wilderness values on 2,148 acres of original WSA would be lost.	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on the entire 8,250 acre WSA.
Forest Management	Forest management activities under this alternative would harvest 363 acres and manage approximately 1,872 acres of the WSA for the production of forest products.	Forest management activities would harvest 363 acres and manage approximately 1,872 acres of the WSA for the production of forest products. Forest management activities would be precluded on 6,102 acres.	No forest management activities would take place in the 8,250 acre WSA under this alternative.
Ranching Operations	Livestock forage production under this alternative would increase by 208 AUMs from a current level of 730 AUMs to 938 AUMs.	Livestock forage production within the proposed wilderness area would remain at current levels. Vehicle use for maintenance of improvements would be subject to the restrictions of BLM's Wilderness Management Policy. The area not proposed for wilderness would increase forage production by 200 AUMs as a result of new range improvement projects.	Livestock forage production would remain at the current level of 730 AUMs. Motor vehicle use restrictions for range project maintenance would slightly increase the cost of keeping cattle on the WSA, although the use of motorized equipment may be allowed under specific conditions for individual projects.
Recreation Use and Quality	Total recreation use would increase from a current level of 1,750 visitor days to approximately 5,000 visitor days per year. Motorized vehicle use associated with hunting and fishing would increase from 10 to 1,000 visitor days per year. This increase, along with proposed forest and range management activities would cause opportunities for primitive types of recreation to be lost over most of the WSA.	Recreation use levels would increase from a current level of 1,750 visitor days per year to 6,000 visitor days per year on the area recommended suitable. Motor vehicle use within this area would be prohibited and opportunities for primitive and unconfined recreation would remain unchanged. Motorized vehicle use associated with hunting and fishing would increase to 1,000 visitor days per year outside of the proposed wilderness. The area outside the proposed wilderness would lose opportunities for primitive recreation due to development of other resources and an increase of motorized traffic.	Primitive recreation opportunities would remain unchanged. Nonmotorized forms of recreation would increase from a current level of 1,750 visitor days per year to about 6,000 visitor days per year. Motorized vehicle use would be prohibited.

TABLE 2-8 (Continued)

Issue	No Wilderness Alternative (Proposed Action and No Action)	Partial Wilderness Alternative	All Wilderness Alternative
Water Quality	There could be short-term (2 or 3 years) increases of up to 3.5 percent in sediment yield, with long-term increases of up to 2 percent from the WSA. Salt production within the WSA could also increase by about 1 percent.	There could be short-term (2 or 3 years) increases of up to 3.5 percent in sediment yield, with a long-term increase of up to 2 percent from the WSA. Salt production within the WSA could also increase about 1 percent.	Sediment yield and salt production from the WSA would remain unchanged.
Big Game Species (Populations and Habitat) and Eagles	Up to 17 of the 115 deer and 6 of the 40 elk presently using the WSA would be displaced. No impacts to fisheries are anticipated. There would be no impacts to golden eagles or other raptors.	Up to 17 of the 115 deer and 6 of the 40 elk presently using the WSA would be displaced. No impacts to fisheries are anticipated. There would be no impacts to golden eagles or other raptors.	Up to 11 of the 115 deer and 4 of the 40 elk presently using the WSA would be displaced. No impacts to fisheries are anticipated. There would be no impacts to golden eagles or other raptors.
Mineral Exploration and Production	The WSA (8,250 Acres) would be open to leasing and mining claims, but due to the low interest in known mineral resources within the WSA, no development is anticipated.	The 2,148 acres of the excluded portion of the WSA would be reopened to leasing and mining claims. The portion of the WSA to be retained as wilderness (6,102 acres) would be closed to all mineral entry. No development on either portion is anticipated, due to the low interest in known mineral resources.	The WSA (8,250 acres) would be closed to mining claims and mineral leasing, but no development is anticipated without wilderness designation because of the low interest in known mineral resources. Therefore, no impact to mineral development is likely to occur.
Private Lands	No impact or change in ownership of 625 acres of private land within the WSA is anticipated.	No impact or change in ownership of 625 acres of private land within the WSA is anticipated.	No impact or change in ownership of 625 acres of private land within the WSA is anticipated.



Map 2-42. Platte River Contiguous WSA

Scale
1:24000

0 ½ 1 mile

Elevations and Contours in Feet
Contours at 20 Foot Intervals

WSA Boundary	▬
Private	▩
National Forest	▥
BLM	☐
Platte River Wilderness (Forest Service)	– – – –

PLATTE RIVER CONTIGUOUS WSA - NO WILDERNESS ALTERNATIVE (NO ACTION)

This alternative would recommend that the entire 30 acres of the Platte River Contiguous WSA not be designated wilderness (see Map 2-42 WSA Boundary).

Grazing Management

Authorization of livestock grazing on the State Line Ranch allotment which includes the WSA would continue; however, the 30 acre WSA is either to rocky or steep to provide any AUMs for livestock grazing purposes. No range improvement projects exist, are proposed or anticipated. No fences exist in the WSA, so no maintenance of fences would be required.

Recreation Management

Under the no wilderness alternative, the WSA would be managed to provide for a predominately natural setting that would compliment the USDA Forest Service management of the adjacent Platte River Wilderness. Use is estimated at 10 visitor days per year due to limited public access which requires permission to cross through adjacent private land. Under this alternative, the existing nonmotorized uses would be encouraged. Views from the adjacent USDA Forest Service Platte River Wilderness (including the North Gate Canyon landscape and viewshed) would be protected administratively. No visitor facilities, such as parking areas or primitive campgrounds would be developed.

Off Road Vehicle (ORV) Management

The entire 30 acres of the Platte River Contiguous WSA would be open to off-road vehicle use, although because of the steep rocky terrain no use is expected.

Minerals Management

This alternative would make 30 acres in the WSA available for mineral entry and leasing, although none is anticipated. Under this alternative, leasing or mineral entry would be allowed. There are no pre-FLPMA leases or currently any mining claims in the WSA, although Vermiculite claims have existed near the WSA in the past. No mineral exploration or development is anticipated. No oil and gas exploration or development is anticipated.

Acquisition of State and Private Lands

Under this alternative, no acquisition of state or private land is anticipated.

Wildlife Management

Wildlife habitat would remain unchanged. Because of the largely unusable habitat (steep, rocky terrain and sparse palatable vegetation), use by deer and elk has not been estimated.

PLATTE RIVER CONTIGUOUS WSA - COMPARISON OF THE IMPACTS OF THE ALTERNATIVES

A comparison of the impacts of the alternatives is presented in Table 2-9. This is a summary drawn from the conclusions presented in Chapter 4 - Environmental Consequences.

TABLE 2-9
Platte River Contiguous - Comparison of the Impacts of the Alternatives

Issue	All Wilderness Alternative (Proposed Action)	No Wilderness Alternative (No Action)
Wilderness Characteristics	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 30 acres under the All Wilderness Alternative. This would also provide legislative protection on these 30 acres of the viewshed of the contiguous Platte River Wilderness Area.	Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 30 acres under the No Wilderness Alternative. This would also provide administrative protection on these 30 acres of the viewshed of the contiguous Platte River Wilderness Area.
Ranching Operations	Due to the absence of forage, livestock forage production within the WSA would be unaffected.	Due to the absence of forage, livestock forage production within the WSA would be unaffected.
Recreation Use and Quality	Recreational use levels are expected to remain at current levels of 10 visitor days per year.	Recreational use levels are expected to remain at current levels of 10 visitor days per year.
Water Quality	No impacts to water quality would occur under this alternative.	No impacts to water quality would occur under this alternative.
Big Game Species (Populations and Habitat) and Eagles	No wildlife species will be impacted under this alternative.	No wildlife species will be impacted under this alternative.
Mineral Exploration and Production	Since there is no current interest in any mineral resources in the WSA, no minerals development is anticipated to be foregone.	Since there is no current interest in any mineral resources in the WSA, no minerals development is anticipated.
Private Lands	No impacts to state or private lands are anticipated under this alternative.	No impacts to state or private lands are anticipated under this alternative.

CHAPTER 3

AFFECTED ENVIRONMENT

BULL CANYON WILDERNESS STUDY AREA - AFFECTED ENVIRONMENT

MANDATORY WILDERNESS CHARACTERISTICS

Size

The Bull Canyon WSA contains 12,297 acres and stands as an individual area not dependent on other lands for size integrity. There is a private inholding of 320 acres (surface and minerals) near the center of the WSA. Three sections of state land (1,920 acres) adjoin the WSA in Colorado.

Naturalness

The Bull Canyon WSA generally appears to have been affected by the forces of nature with human influences being substantially unnoticeable.

Bull Canyon is characteristic of the arid canyon ecosystems of northwest Colorado. Pinyon/juniper, sagebrush, and native grasses are the main vegetation communities. Riparian vegetation including boxelder, cottonwood, and willows, are found along various stream beds in the WSA. Geographically, the area is cut by deep ridges and gullies of sandstone eroded by rain and snowmelt waters. Interesting geology with colorful cliffs, canyons, and unique rock formations are a result of deep erosion.

Minor imprints of man can be found in the WSA. A jeep trail and abandoned reservoir are located in Buckwater Draw. Natural revegetation is diminishing the impact of these intrusions, making the imprint of man's work substantially unnoticeable. Existing range improvement projects, consisting of two developed springs with watering troughs, three earthen stock ponds, and two and one-half miles of fence, are screened by vegetation and topography to the extent that they are not noticeable. There is also a well with three-fourths mile of pipeline that serves a nearby residence. Outside sights and sounds from vehicle traffic might be noticeable from the southwest and southeast portions of the WSA which are less than one-half mile from well-traveled paved roads.

Outstanding Opportunities

Due to the diverse topography and dense vegetation of this WSA, opportunities for solitude are outstanding. On higher elevations a visitor may see the vast open space created by the basin which is accentuated by the scenic backdrop of Cliff Ridge in Utah. Open space and the isolation offered by the numerous canyons enhance the opportunities for solitude.

The area also offers opportunities for users to participate in primitive and unconfined recreational activities including hiking, backpacking, camping, hunting, sightseeing, photography, and horseback riding. Desert hikes along K Creek, Middle Creek, Buckwater Draw, and Bull Canyon offer interesting and scenic opportunities for viewing colorful geology and wildlife.

Special Features

The Dominguez/Escalante Expedition of 1776 reportedly camped within the west central portion of the WSA. The history of the encampment is well documented and recounts that the expedition drew water from a flowing well and hunted buffalo there.

The National Park Service (Dinosaur National Monument) manages two overlook sites (Plug Hat Picnic Area and Escalante Overlook) adjacent to this area. The picnic area overlooks the WSA and interpretive signs describe the area's geology and history. The National Park service estimates 70,000 visitors annually travel the Harper's Corner Road leading to the canyons of Dinosaur National Monument and paralleling the WSA. Many visitors frequent the picnic site and overlooks for the breathtaking vista.

The University of Arizona has studied relic pinyon pine in the area to establish dendrochronological data on climate extending more than 600 years into the past. Although none is proposed, continued research in the Bull Canyon area is anticipated. This would not affect wilderness characteristics.

Diversity

The BLM has selected the Bailey Kuchler ecosystem of the United States land classification system as utilized by the U.S. Forest Service in its Rare II and "Further Planning" wilderness studies (Bailey 1978, and

Kuchler 1975). The Bailey Kuchler system was selected because it is a land classification system which allows a comparison of standardized ecosystem types within individual units of the National Wilderness Preservation System (NWPS).

The Bull Canyon WSA is representative of the Rocky Mountain forest, sagebrush steppe (M3110 49) and the Rocky Mountain forest, juniper pinyon woodland (M3110 21) ecosystems. The Rocky Mountain forest, sagebrush steppe ecosystem is found in only 2 designated wilderness areas within 200 air miles (approximately one day's drive). Dinosaur National Monument, however, (an area administratively endorsed for wilderness designation) is less than seven miles from the WSA and is representative of this ecosystem. The Rocky Mountain forest, juniper-pinyon ecosystem is represented within 200 air miles by the Desert Peak wilderness area in Utah and Dinosaur National Monument (administratively endorsed). Existing and potential wilderness areas within 200 miles of the Bull Canyon WSA are shown in Appendix A.

Of areas currently under study in the state, 13 BLM areas have Rocky Mountain forest province, juniper-pinyon woodland. An additional 9 BLM areas have a Rocky Mountain forest, sagebrush steppe ecosystem.

This WSA is two and one-half to three hours from the closest major metropolitan area (Grand Junction, Colorado) and approximately five hours from both Denver and Salt Lake City.

RANCHING OPERATIONS

Portions of two livestock grazing allotments lie within the Bull Canyon Wilderness Study Area. Allotment management plans estimate that 826 AUMs of livestock forage are available within the WSA. Allotment boundaries are shown on Map 3-1.

Allotment 6307 includes 11,990 acres and 795 AUMs within the WSA. Total federal land within allotment 6307 is 41,402 acres with 3,440 AUMs. Allotment 6304 includes approximately 307 acres and 31 AUMs within the WSA. Total federal land within allotment 6304 is 6,225 acres with 1,208 AUMs.

Both allotments graze cattle throughout most of the year; however, cattle from allotment 6304 are removed during the winter.

Ecological range condition in the WSA, although not inventoried, is estimated to be 65 percent excellent, 15 percent good, 5 percent fair, and 15 percent poor.

Existing range improvements within the WSA consist of two developed springs with watering troughs, three earthen stock ponds, and two and one-half miles of fence.

RECREATION USE AND QUALITY

The Bull Canyon WSA provides a setting for semi-primitive motorized and nonmotorized recreation experiences and offers outstanding opportunities for primitive and unconfined recreation. Current activities include hunting, camping, hiking, and horseback riding.

Current hiking use is estimated at about 300 visitor days per year due to the ease of access provided by a paved National Park Service road skirting the southeast side of the WSA.

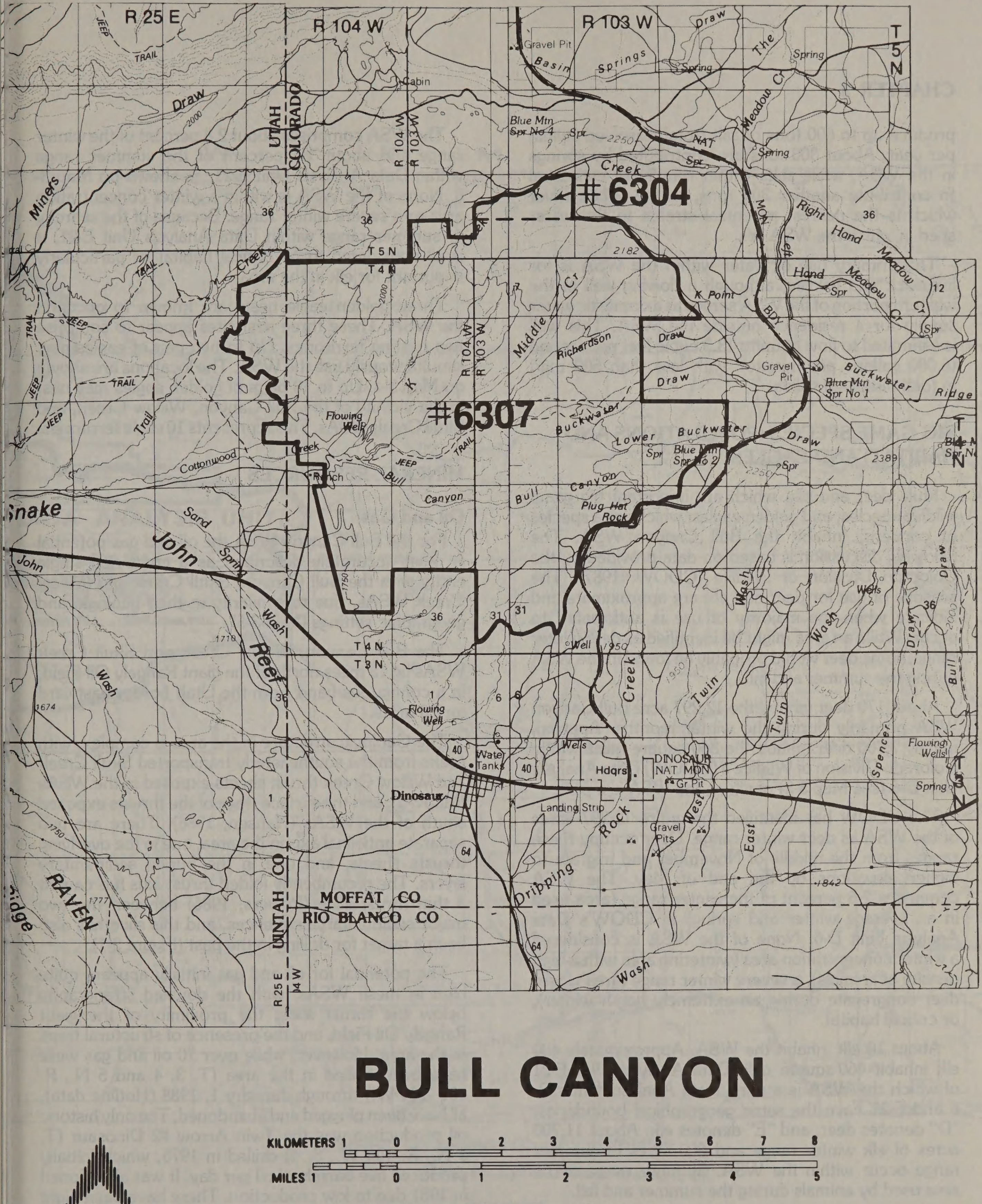
Deer and elk hunting within the WSA is considered good. Hunting is estimated at 400 hunter days per year. Hunting activity also has an estimated 50 off-road vehicle (ORV) user days associated with it.

The Plug Hat Rock picnic area and Escalante overlook, while outside the WSA and managed by the National Park Service, provide important, breathtaking vistas of this WSA. The National Park Service estimates an annual average of 70,000 visitors travel on the Harper's Corner Road which separates the Bull Canyon and Willow Creek WSAs. Both the Plug Hat Rock picnic area and Escalante overlook are located along this road.

WATER QUALITY

Very limited water quantity and quality data is available for the WSA (only one measurement of springs and seeps in the area has been made). Estimates have been provided based on averages for the vicinity. There are no perennial streams within the WSA. The sediment yield produced from snow melt and rainfall runoff is estimated at 0.5 tons per acre per year overall for the WSA. This is average for the vicinity of the WSA, and no special or unique conditions exist within the WSA. The estimate is based on an assumption that the potential erosion rate of 2.6 tons per acre per year produces a sediment yield of about 20 percent or about 0.5 tons per acre per year.

The 16 springs identified within the WSA have a combined estimated peak flow of 0.95 cubic feet per second or 430 gallons per minute and an average total dissolved solid content of 550 mg/l. (The drinking water standard is 500 mg/l.) The WSA is estimated to



Map 3-1. Bull Canyon - Allotment Boundary

Grazing Allotments **6613**

produce up to 600 tons of salt (total dissolved solids) per year. About 300 tons are contributed by springs in the WSA, while salts within runoff are estimated to contribute another 300 tons, to the White River which is the nearest perennial stream to the water shed in which the WSA lies.

The primary use of water within the WSA is for livestock and wildlife, although a flowing well in the western portion of the WSA serves as a domestic water supply for a residence outside the WSA. This well is estimated to flow at up to 13.3 cubic feet per second (6,000 gallons per minute), with less than 500 mg/l in total dissolved solids.

BIG GAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Mule deer and elk, which are important big game wildlife species, and golden eagles, which are a species of concern, inhabit the Bull Canyon WSA. The following discussion is based on data provided by the Colorado Division of Wildlife (CDOW, 1987). The seasons of use for deer and elk are approximate and indicate when the majority of use is anticipated to occur. While an area might be identified as deer winter range, some deer would probably be found in the WSA during the summer and fall.

About 170 deer inhabit the 12,297 acre Bull Canyon WSA primarily during the winter months. Approximately 7,700 deer inhabit the 860 square miles within Colorado Division of Wildlife's (CDOW) Data Analysis Unit D-6 (see Map 3-2) of which the WSA is a part.

The CDOW has identified the entire 12,297 acres of the WSA as deer winter range. Deer occupy these ranges from the middle of November and migrate to higher elevations by the end of May. The WSA comprises 2-6 percent of the winter range (area used in an average winter and spring) in CDOW's Data Analysis Unit D-6. None of the WSA is considered a winter concentration area (wintering area with a high density of animals), a severe winter range (area where deer congregate during an extremely harsh winter), or critical habitat.

About 10 elk inhabit the WSA. Approximately 400 elk inhabit 460-square mile Data Analysis Unit E-21 of which the WSA is a part. Data Analysis Units D-6 and E-21 have the same geographical boundaries; "D" denotes deer, and "E" denotes elk. About 11,700 acres of elk winter range and 600 acres of summer range occur within the WSA. Summer range is the area used by animals during the summer and fall.

The WSA comprises about 2.8 percent of the winter range and about 1.5 percent of the summer range within Data Analysis Unit E-21, as shown on Map 3-3. None of the WSA is within a winter concentration area or a severe winter range. Because of the scarcity of summer range within Data Analysis Unit E-21, it is all considered to be critical habitat or particularly important for elk in the area.

Three golden eagle nests are known to occur in the WSA. These three nest sites appear to comprise two nesting territories. Up to two pair of eagles may simultaneously use the WSA. The locations are shown on Map 3-4. Up to 10 pairs of golden eagles may nest in the vicinity of the Bull Canyon, Willow Creek, and Skull Creek WSAs. This represents 10 eagle territories.

MINERAL RESOURCES

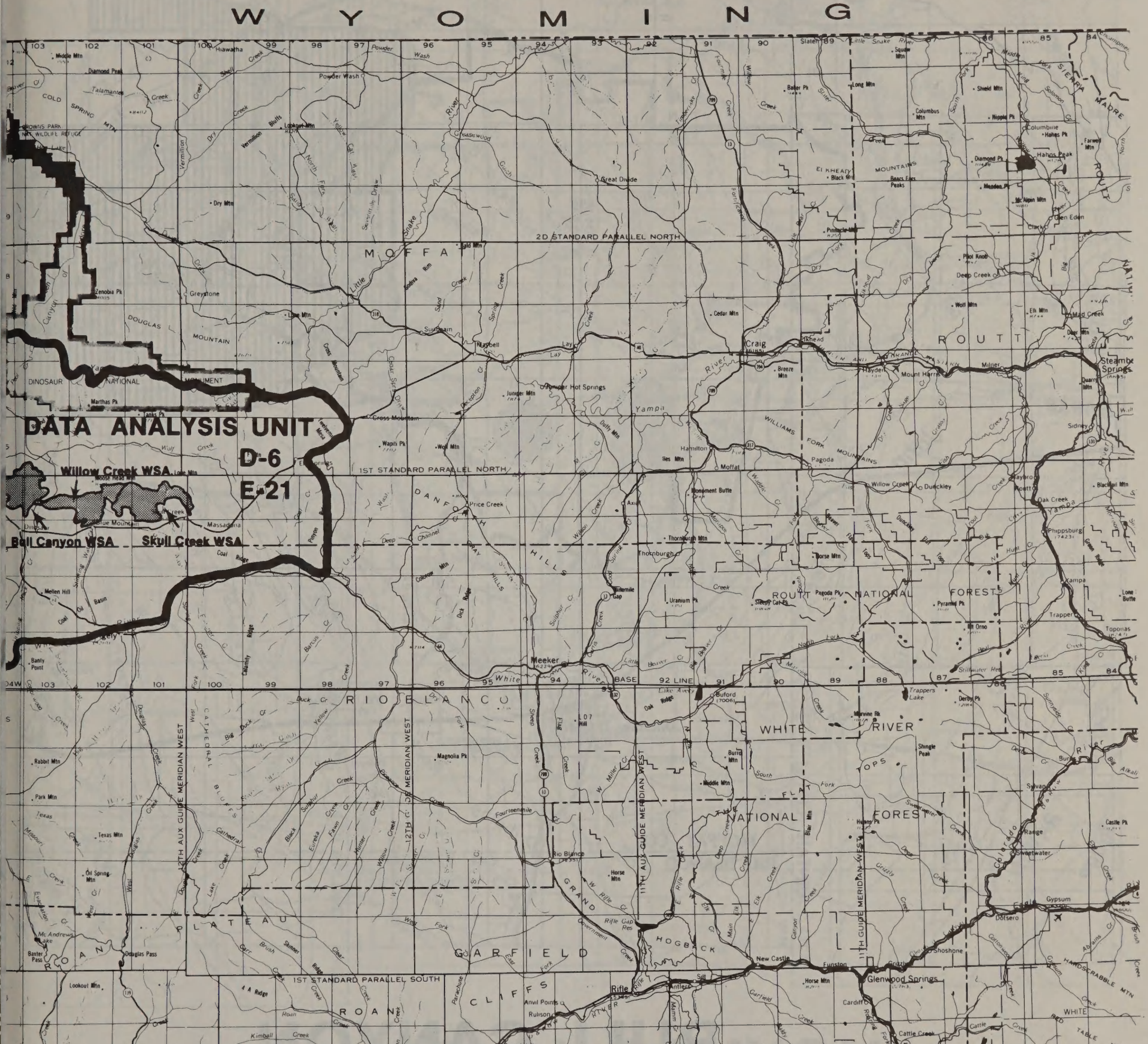
Oil and Gas

For the Bull Canyon WSA the oil and gas potential is most accurately described as a combined single entity with the Bull Canyon, Skull Creek and Willow Creek WSAs, due to similarity in their geologic and geographic settings (Map 3-5).

The Bull Canyon, Willow Creek and Skull Creek WSAs lie 12 miles north of the giant Rangely Oil Field, in a contiguous band from the Utah border eastward for 20 miles.

The Geologic structure in the area is complex, with rocks from the southeasterly transported Skull Creek and Willow Creek thrust sheets exposed in the WSAs (Map 3-5), and the surface trace of the thrusts exposed south of the WSAs (Hansen, 1986). There are two separate anticlinal axis in the area, one in the overlying thrusts sheets, and one in the buried sedimentary layers. The recumbently folded thrust axis has caught a thin thrust slice (Powers, 1986) between the two major sedimentary sequences, and this slice has also been a target for drilling in the past (Figure 3-1).

The potential for oil and gas initially appears quite high in these WSAs, with the doubled stratigraphy below the thrust slice, the proximity of the giant Rangely Oil Field, and the presence of structural traps in the area. However, while over 70 oil and gas wells have been drilled in the area (T. 3, 4 and 5 N., R. 100 -104 W.) through January 1, 1988 (Hotline data), all have been plugged and abandoned. The only historic oil production was the Twin Arrow #2 Dinosaur (T. 3 N., R. 104 W., S. 4) drilled in 1975, which initially produced five barrels of oil per day. It was abandoned in 1981 due to low production. There have been eight



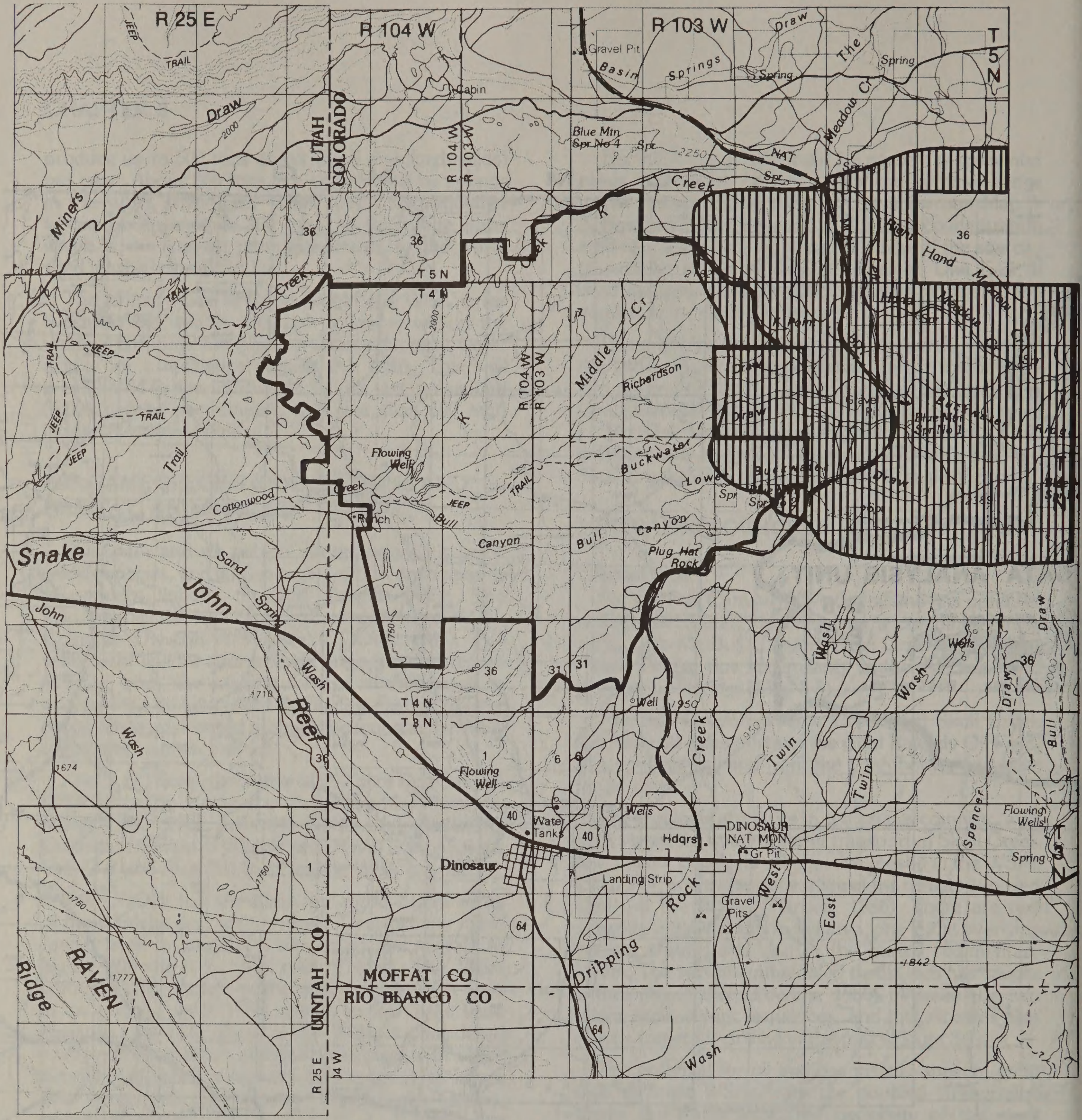
Map 3-2. Colorado Division of Wildlife
Data Analysis Units D-6 and E-21

Scale 1:1,000,000
1 inch equals Approximately 16 miles

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometers

N



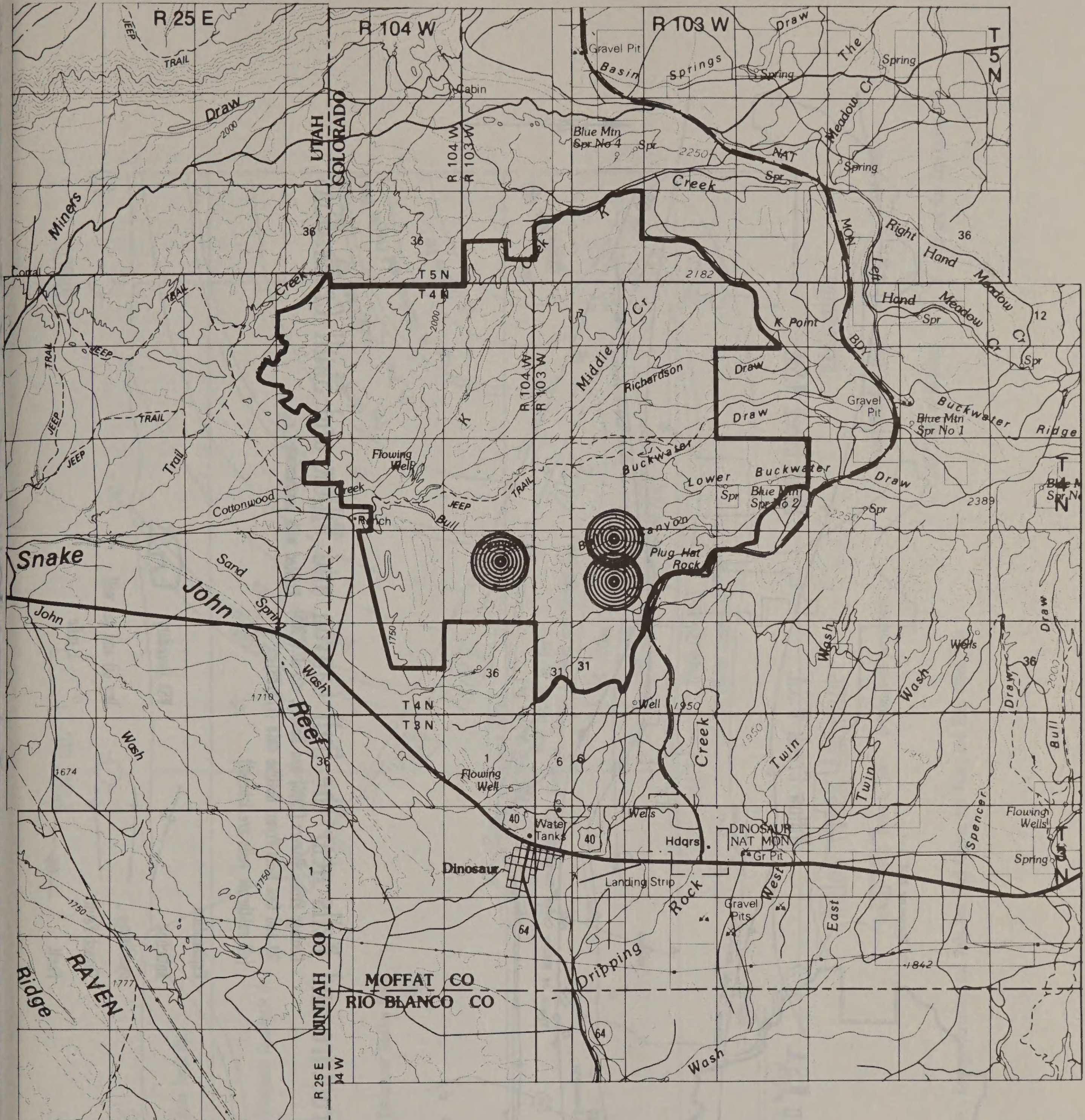
BULL CANYON

KILOMETERS 1 0 1 2 3 4 5 6 7 8

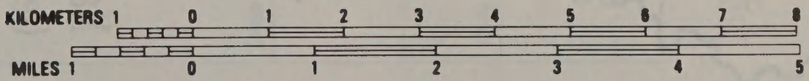
MILES 1 0 1 2 3 4 5

Map 3-3. Bull Canyon - Elk Habitat (Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Area is Winter Range)

Summer Range ▥

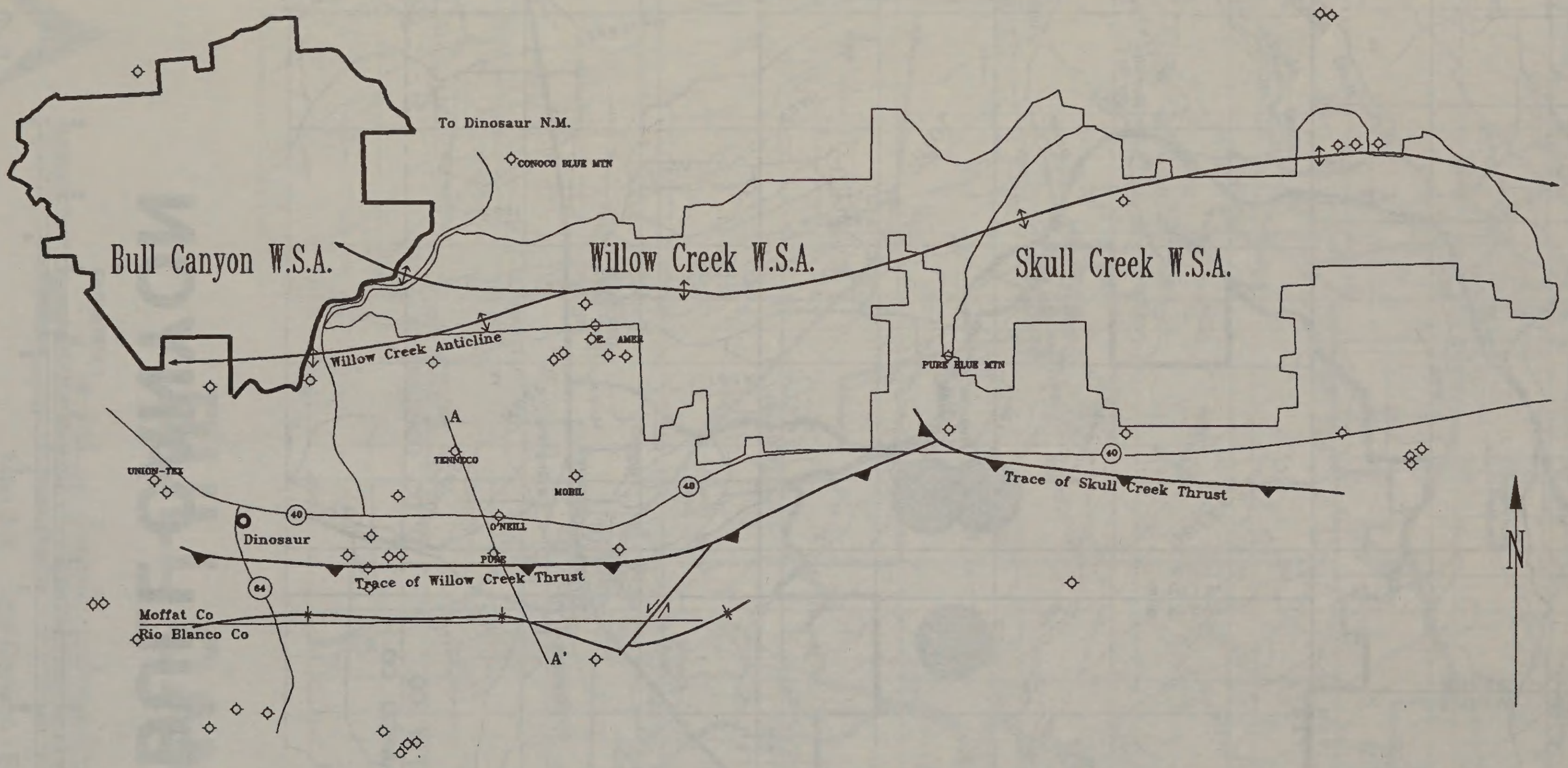


BULL CANYON



Map 3-4. Bull Canyon - Golden Eagle Nest Locations

Nest Locations ◎



Map 3-5

Geologic Structure and Wells near the Bull Canyon and Willow and Skull Creek WSAs

Geology From: Powers (1986) and Rowley, et. al. (1985) Printed with permission

Oil and Gas Wells From: Hotline data (1/3/89)

(all subthrust wells are labeled)

Explanation

Anticline

syncline

Thrust Fault

Fault

WSA Boundary

Dry oil and gas well ◇

0 1 mile

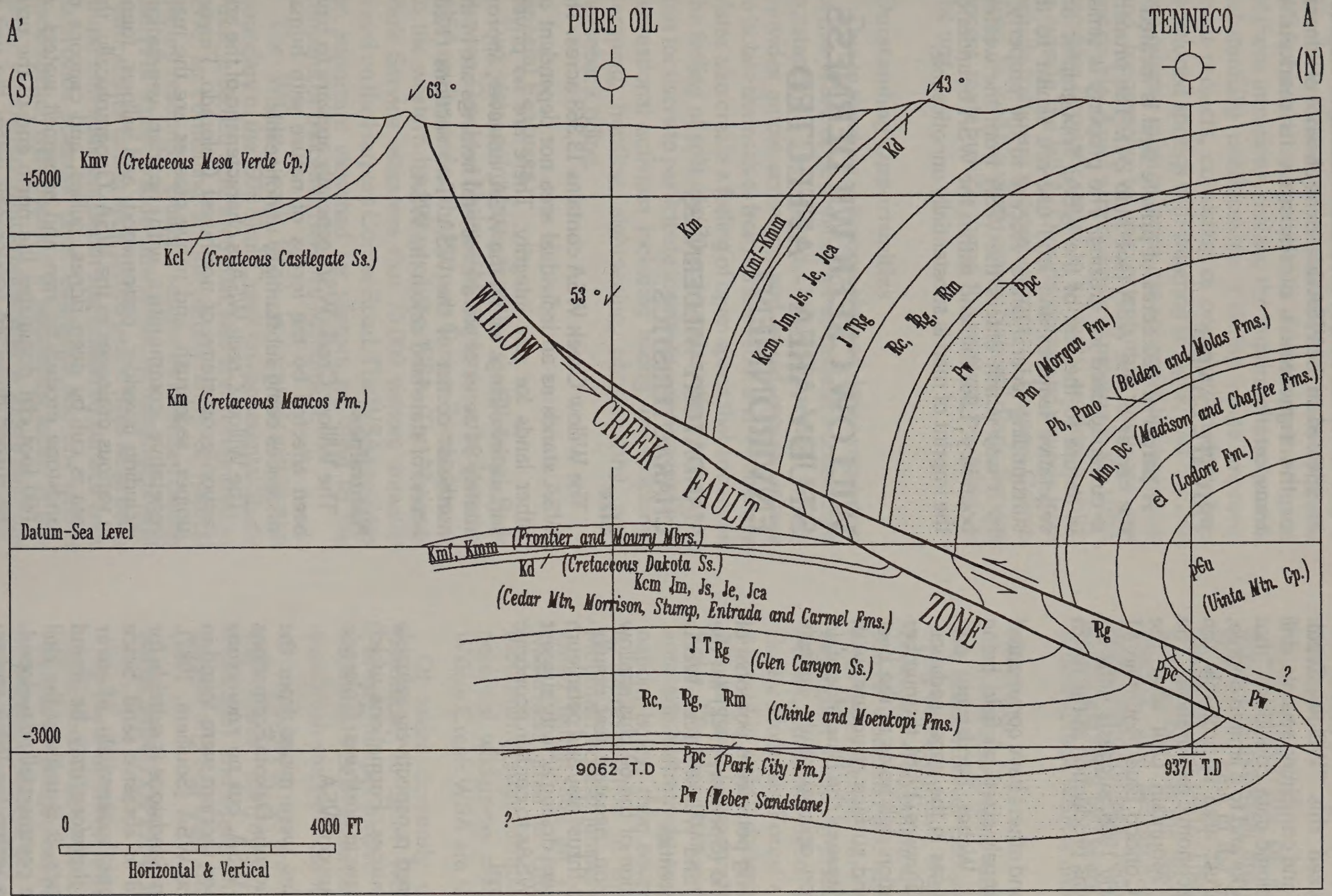


Fig. 3-1

Willow Creek Anticline

Geology from: Powers, 1986 *printed with permission*

Explanation

+5000 Elevation (feet)

Thrust Fault

43 ° Dip of Bedding

Oil and Gas Exploration Well

located as A-A' on map 3- , Geologic Structure and Wells Near Bull Canyon and Willow and Skull Creek WSAs

sub-thrust holes drilled with no reported production. Powers (1986) has analyzed this "Willow Creek Foreland Sub-thrust Play," and combining seismic, drill hole, test and surfacial geologic data concludes "that shows exist only in tight rocks and to a limited degree, and the remaining sub-thrust area is probably too restricted to justify further economic exploration." The recent lapse of the Blue Mountain Unit after the unreported results of the Conoco Blue Mountain #1 well, drilled in late 1987-early 1988, suggests unfavorable conditions for oil and gas production at the north boundary of the WSAs.

The Tulley Corporation and others have commented on the possibility of a Rangely-sized oil field being present in the sub-thrust Weber Sandstone, and possible producible oil and gas in the upper sedimentary sequence. The work of Powers (1986), the number and distribution of exploration drill holes at the best targets (from geophysics and surface structure) with their poor results, and the lapse of the Blue Mountain Unit (by lack of exploration drilling) refute Tulley's claims.

The USGS report covering petroleum potential of wilderness lands in Colorado (Spencer, 1982) list the Bull Canyon, Skull Creek, and Willow Creek WSAs as having low petroleum potential.

The density and distribution of the 60 plus shallow drill holes, lack of production, negative test results, published analysis of the sub-thrust play and petroleum potential, and paucity of recent drilling activity suggest that the likelihood of these WSAs to contain economic oil and gas deposits is minimal.

Other Minerals

The WSA is not considered prospectively valuable for any other mineral resources. Formations which bear coal or oil shale elsewhere in northwest Colorado are eroded from the Bull Canyon WSA.

Small amounts of uranium were mined from the Jurassic Morrison and Cretaceous Dakota Formations 10 to 15 miles east of the WSA, but no anomolous concentrations of uranium or thorium were found in geochemical sampling of the WSA (Soulliere, 1987). Sand from the Glen Canyon Sandstone is suitable for foundry and fracturing sand or abrasive sand. Since the Glen Canyon outcrops extensively all over northwest Colorado, and therefore may be found closer to prospective markets, it is unlikely the Bull Canyon area would ever be commercially developed. There are no mining claims within the WSA and no known source localities for commercial minerals with the exception of sand discussed above.

No other leasable or locatable mineral development is expected on the WSA due to the absence of minerals or the remoteness of the area to markets or transportation.

PRIVATE LANDS

A parcel of 320 acres of private land is located in the center of the WSA (see Map 2-1). The property is currently used for grazing. The property is similar in nature to the rest of the WSA. Topographic and vegetative features and land use are similar to the surrounding federal lands. Access to the property is by a way which enters the WSA from the western boundary. Like the land within the WSA boundaries, the imprint of man is substantially unnoticeable.

WILLOW CREEK WILDERNESS STUDY AREA - AFFECTED ENVIRONMENT

MANDATORY WILDERNESS CHARACTERISTICS

Size

The Willow Creek WSA contains 13,368 acres. The WSA stands as an individual area not dependent on other lands for size integrity. There are no private surface inholdings within the WSA, however, approximately 94 acres of private mineral holdings are in the northeast corner of the WSA. Two sections (1,280 acres) of state land adjoin the WSA.

Naturalness

The Willow Creek WSA generally appears to have been affected by the forces of nature with human influences being substantially unnoticeable.

The Willow Creek WSA is characteristic of the arid canyon ecosystems of northwest Colorado. Pinyon, juniper, sagebrush, and native grasses are the main vegetative communities with riparian vegetation, including boxelder, cottonwood, and willows, found in various drainages in the WSA. Geographically, the area is cut by deep ridges, gullies, and canyons of sandstone eroded by rain and snowmelt waters. A 1,000 foot cliff dominates the north end of the unit. The rugged dissected topography within the unit is mostly covered with pinyon-juniper except for a natural burn area on the western end of the unit.

Minor imprints of man can be found in the WSA. Several vehicle ways and seismic lines exist within the WSA. Natural revegetation is diminishing the impact of these intrusions, making the imprint of man's work substantially unnoticeable. Existing range improvement projects, consisting of one earthen dam, four developed springs with watering troughs, and one and one-quarter miles of fence, are screened by vegetation and topography to the extent that they are not noticeable. A well with one mile of pipeline in the WSA provides domestic water to a nearby residence which is outside the WSA. Outside sights and sounds from vehicle traffic are noticeable from the Harpers Corner Road (a well-traveled, paved National Park Service access route) which forms the western boundary of the unit.

Outstanding Opportunities

Due to the diverse topography and dense vegetation of this WSA, opportunities for solitude are considered outstanding. The rugged, highly dissected terrain provides ample screening and would enable visitors to isolate themselves from others in the unit. Numerous vistas also create a feeling of open space that enhances the feeling of solitude. The area also offers opportunities for users to participate in primitive and unconfined recreational activities including hiking, backpacking, camping, hunting, sightseeing, photography, and horseback riding.

Special Features

Two vista points managed by the National Park Service, Dinosaur National Monument overlooking the WSA are located on the Harpers Corner Road adjacent to the western boundary of the WSA. The National Park Service estimates that 70,000 visitors annually travel on the Harpers Corner Road. The WSA provides an important viewshed for visitors traveling to the canyons of Dinosaur National Monument.

The Willow Creek WSA is located within the boundary of the 1976 Skull Creek Environmental Study Area, a 58,626 acre area that was first recognized in 1975 as containing an interesting array of natural history resources. Cultural resources identified during the 1976 study include substantial archaeological and cultural sites dating back 10,000 years. Sites have been found with sufficient depth and unaltered surface area to provide scientific data. Granaries and one walled rock shelter were located in sandstone faces. A few badly weathered pictographs and a single wickiup cluster were also found. Artifacts found in the WSA include projectile points, knives, drills, scrapers, choppers, grinding stones, pottery, and juniper bark matting.

The University of Arizona has conducted a dendrochronological analysis of wood samples from relic pinyon pine in the Skull Creek Basin (of which this WSA is a part). Their analysis showed the trees to be at or near the maximum age attainable by the species. The research provides a data base for dendrochronological reconstruction of local climate extending back 600 years. Continued research in the Willow Creek WSA is anticipated.

Diversity

The Willow Creek WSA has been classified under the Bailey-Kuchler Ecosystem classification system as being representative of the Rocky Mountain Forest Ecoregion. The potential natural vegetation is juniper-pinyon woodland and sagebrush steppe. The ecosystems represented are Rocky Mountain Forest, sagebrush steppe (M3110-49) and Rocky Mountain Forest, juniper/pinyon woodland (M3110-2I). The Rocky Mountain Forest sagebrush steppe ecosystem is found in only 2 designated wilderness areas within 200 air miles (approximately one day's drive) of the WSA. Dinosaur National Monument, however, (an area administratively endorsed for wilderness designation) is less than seven miles from the WSA and is representative of this ecosystem. The Rocky Mountain Forest, juniper-pinyon ecosystem is represented within 200 air miles by the Desert Peak wilderness area in Utah and Dinosaur National Monument (administratively endorsed). Existing and potential wilderness areas within 200 miles of the Willow Creek WSA are shown in Appendix A.

Of areas currently under wilderness study in Colorado, 13 BLM WSAs have Rocky Mountain Forest, juniper-pinyon woodland ecosystems; an additional 9 BLM areas have a Rocky Mountain Forest, sagebrush steppe ecosystem.

This WSA is two and one-half to three hours from the closest metropolitan area (Grand Junction, Colorado) and approximately five hours from both Denver and Salt Lake City.

RANCHING OPERATIONS

Portions of three livestock grazing allotments lie within the Willow Creek Wilderness Study Area. Allotment management plans estimate that 812 AUMs of livestock forage are available within the WSA. Allotment boundaries for both Willow Creek and Skull Creek WSAs are shown on Map 3-6.

Allotment 6307 includes 9,833 acres and 652 AUMs within the WSA. Total federal land within allotment 6307 is 41,402 acres with 3,440 AUMs. Allotment 6308 includes 2,205 acres and 85 AUMs within the WSA. Total federal land within allotment 6308 is 41,364 acres with 4,045 AUMs. Allotment 6323 includes 1,330 acres and 75 AUMs within the Willow Creek WSA. Total federal lands in allotment 6323 are 53,155 acres with 4,474 AUMs.

Allotments 6307 and 6323 are used to graze cattle in the area year-round. Allotment 6308 is used for sheep grazing during the spring and winter.

Although not inventoried, ecological range condition in the WSA is estimated to be 80 percent excellent, 5 percent good, and 15 percent fair.

Existing range improvements within the WSA are shown on Map 2-9 and consist of one check dam, four developed springs with troughs, one and one-quarter miles of fence, and one mile of domestic water pipeline.

RECREATION USE AND QUALITY

The Willow Creek WSA provides a setting for semi-primitive motorized and nonmotorized recreation and offers outstanding opportunities for primitive and unconfined recreation. Current activities include hunting, camping, hiking, and horseback riding.

Deer and elk hunting within the WSA is considered good. Hunting use is estimated at 400 hunter days per year. Hunting activity has an estimated 50 off-road vehicle (ORV) user days associated with it. Nonhunting uses are estimated at 300 visitor days per year for activities such as hiking, photography, and horseback riding. Access to the WSA is by way of a series of roads and trails forming the northern and western boundary. Two visitor overlooks provide views of the WSA from the Harpers Corner Road. The National Park Service estimates an annual average of 70,000 visitors on this road. It is reasonable to assume many of these visitors stop at the overlooks and view the WSA on their way to Dinosaur National Monument.

WATER QUALITY

Very limited water quantity and quality data is available for the WSA with only one measurement of spring and seeps in the area. Estimates have been provided based on averages for the vicinity. There are no perennial streams within the WSA. The sediment yield produced from snow melt and rainfall runoff is estimated at 0.4 tons per acre per year overall for the WSA. This is average for the vicinity of the WSA and no special or unique conditions exist within the WSA. The estimate is based on an assumption that the potential erosion rate of 2.05 tons per acre per year produces a sediment yield of about 20 percent or 0.4 tons per acre per year.

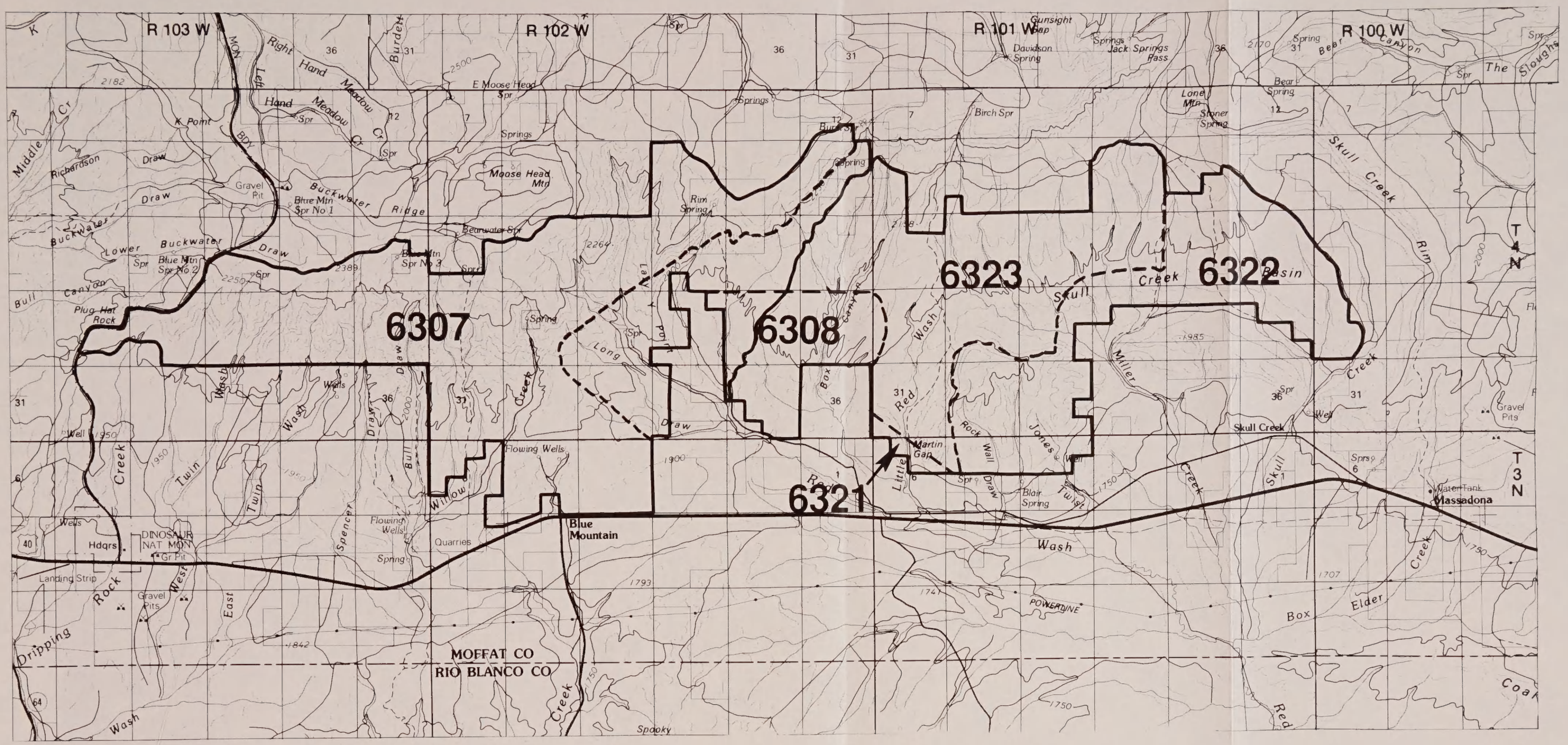
The 16 springs within and 4 springs outside, which contribute to the WSA, have a average total dissolved solid content of 735 mg/l. (The drinking water standard is 500 mg/l). The springs have a combined estimated peak flow of about 0.11 cubic feet per second or about 50 gallons per minute. Three free flowing or artesian wells totaling 20 gallons/minute (about 0.04 cubic feet per second) also occur in the WSA and have an average total dissolved solid content of about 473 mg/l.

The WSA is estimated to contribute 275 tons of salt (total dissolved solids) within runoff, and 60 to 70 tons of salts from springs, per year to the White River which is the nearest perennial stream and the watershed in which the WSA lies. Both sediment yield and contribution of salts may vary up to 25 percent from year to year depending on the duration and intensity of precipitation.

BIG CAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Mule deer and elk which are important big game wildlife species, and golden eagles which are a species of concern, inhabit the Willow Creek WSA. The following discussion is based on data provided by the Colorado Division of Wildlife (CDOW, 1987). The seasons of use for deer and elk are approximate and indicate when the majority of use is anticipated to occur. While an area might be identified as deer winter range, some deer would probably be found in the WSA during the summer and fall.

About 190 deer inhabit the 13,368 acre Willow Creek WSA primarily during the winter months. Approximately 7,700 deer inhabit the 860 square miles within Colorado Division of Wildlife's (CDOW) Data Analysis Unit D-6 (see Map 3-2) of which the WSA is a part. The CDOW has identified all but 270 acres of the WSA as deer winter range. Deer occupy these ranges from the middle of November and migrate to higher elevations (summer range) by the end of May. The WSA comprises 2.8 percent of the winter range (area used in an average winter and spring) in CDOW's Data Analysis Unit D-6. The 270 remaining acres are classified as summer range and constitute 0.3 percent of the summer range in Data Analysis Unit D-6. None of the WSA is considered a winter concentration area



WILLOW/SKULL CREEK

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

N

Map 3-6. Willow Creek / Skull Creek Allotment Boundaries

Grazing Allotments 6322

(wintering area with a high density of animals) or a severe winter range (area where animals congregate during an extremely harsh winter), or critical habitat. Mule deer habitat is shown on Map 3-7.

Up to 50 elk may use habitats within the WSA. Approximately 400 elk inhabit the 860-square-mile Data Analysis Unit E-21 of which the WSA is a part. Data Analysis Units D-6 and E-21 have the same geographical boundaries; "D" denotes deer and "E" denotes elk. About 7,950 acres of elk winter and 5,420 acres of summer range occur within the WSA. Because of the scarcity of summer range within Data Analysis Unit E-21, it is all considered to be critical habitat particularly important for elk in the area, and probably receives a higher level of use than winter range within the WSA. Summer range is the area used by animals during the summer and fall. Elk occupy the winter range from the first of December, migrating to higher elevations by the end of April. The WSA comprises about 1.8 percent of the winter range and about 13.8 percent of the summer range within Data Analysis Unit E-21. The elk habitat is shown on Map 3-8. None of the WSA is within a winter concentration area or a severe winter range.

Two golden eagle nests are known to occur in the WSA. These nest sites appear to comprise two nesting territories. Up to two pair of eagles may simultaneously use the WSA. The locations are shown on Map 3-9. Up to 10 pairs of golden eagles may nest in the vicinity of the Bull Canyon, Willow Creek and Skull Creek WSAs. This represents 10 eagle territories.

The WSA has not received a thorough raptor inventory. Additional cliff nesting (i.e., red tailed hawk) and woodland nesting (i.e., Cooper's hawk and long-eared owl) raptors undoubtedly occupy the area.

MINERAL RESOURCES

Oil and Gas

For the Willow Creek WSA the oil and gas potential is most accurately described as a combined single entity with the Bull Canyon, Skull Creek, and Willow Creek WSAs, due to similarity in their geologic and geographic settings (Map 3-10).

The Bull Canyon, Willow Creek and Skull Creek WSAs lie 12 miles north of the giant Rangely Oil Field, in a contiguous band from the Utah border eastward for 20 miles.

The Geologic structure in the area is complex, with rocks from the southeasterly transported Skull Creek and Willow Creek thrust sheets exposed in the WSAs (Figure 3-2), and the surface trace of the thrusts exposed south of the WSAs (Hansen, 1986). There are two separate anticlinal axis in the area, one in the overlying thrusts sheets, and one in the buried sedimentary layers. The recumbently folded thrust axis has caught a thin thrust slice (Powers, 1986) between the two major sedimentary sequences, and this slice has also been a target for drilling in the past (Figure 3-2).

The potential for Oil and Gas initially appears quite high in these WSAs, with the doubled stratigraphy below the thrust slice, the proximity of the giant Rangely Oil Field, and the presence of structural traps in the area. However, while over 70 oil and gas wells have been drilled in the area (T. 3, 4 and 5 N., R. 100 -104 W.) through January 1 1988 (Hotline data), all have been plugged and abandoned. The only historic oil production was the Twin Arrow #2 Dinosaur (T. 3 N., R. 104 W., S. 4) drilled in 1975, which initially produced five barrels of oil per day. It was abandoned in 1981 due to low production). There have been eight sub-thrust holes drilled with no reported production. Powers (1986) has analyzed this "Willow Creek Foreland Sub-thrust Play," and combining seismic, drill hole, test and surfacial geologic data concludes "that shows exist only in tight rocks and to a limited degree, and the remaining sub-thrust area is probably too restricted to justify further economic exploration." The recent lapse of the Blue Mountain Unit after the unreported results of the Conoco Blue Mountain #1 well, drilled in late 1987-early 1988, suggests unfavorable conditions for oil and gas production at the north boundary of the WSAs.

The Tulley Corporation and others have commented on the possibility of a Rangely-sized oil field being present in the sub-thrust Weber Sandstone, and possible producible oil and gas in the upper sedimentary sequence. The work of Powers (1986), the number and distribution of exploration drill holes at the best targets (from geophysics and surface structure) with their poor results, and the lapse of the Blue Mountain Unit (by lack of exploration drilling) refute Tulley's claims.

The USGS report covering petroleum potential of wilderness lands in Colorado (Spencer, 1982) list the Bull Canyon, Skull Creek, and Willow Creek WSAs as having low petroleum potential.

The density and distribution of the 60 plus shallow drill holes, lack of production, negative test results, published analysis of the sub-thrust play and petroleum potential, and paucity of recent drilling activity

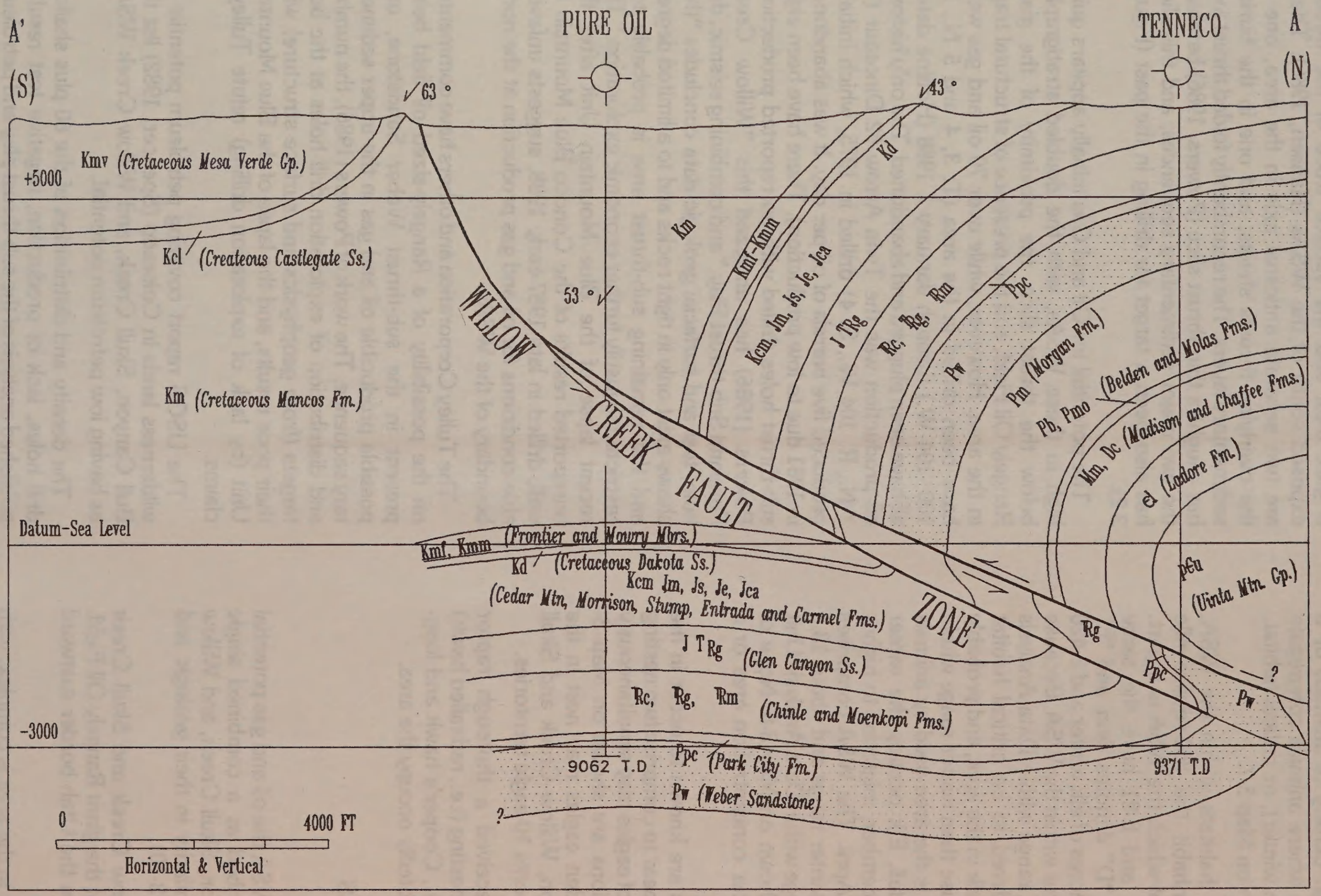


Fig. 3-2

Willow Creek Anticline

Geology from: Powers, 1986 *printed with permission*

Explanation

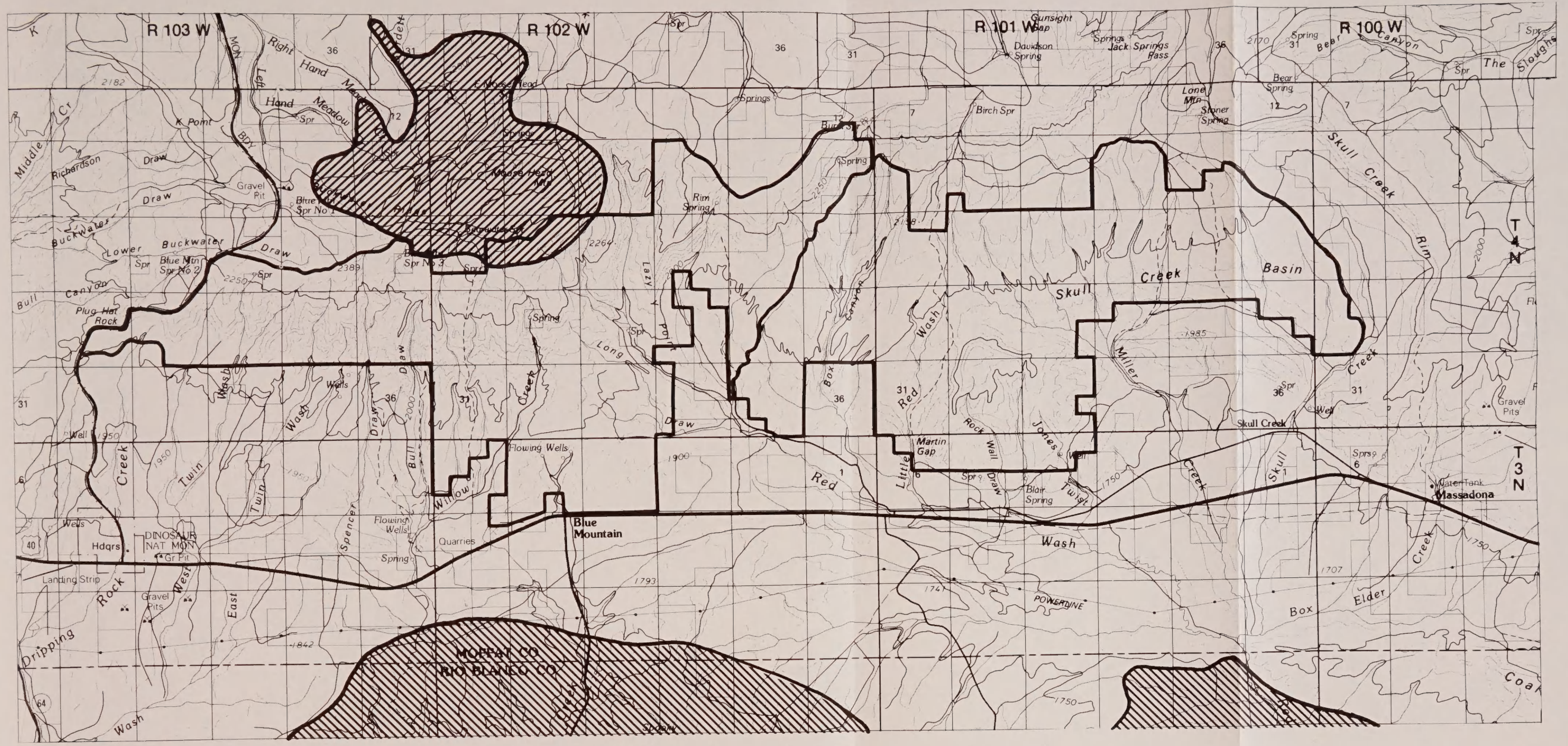
+5000 Elevation (feet)

Thrust Fault

43 ° Dip of Bedding

Oil and Gas Exploration Well

located as A-A' on map 3- , Geologic Structure and Wells Near Bull Canyon and Willow and Skull Creek WSAs



WILLOW/SKULL CREEK

KILOMETERS 1 0 1 2 3 4 5 6 7 8

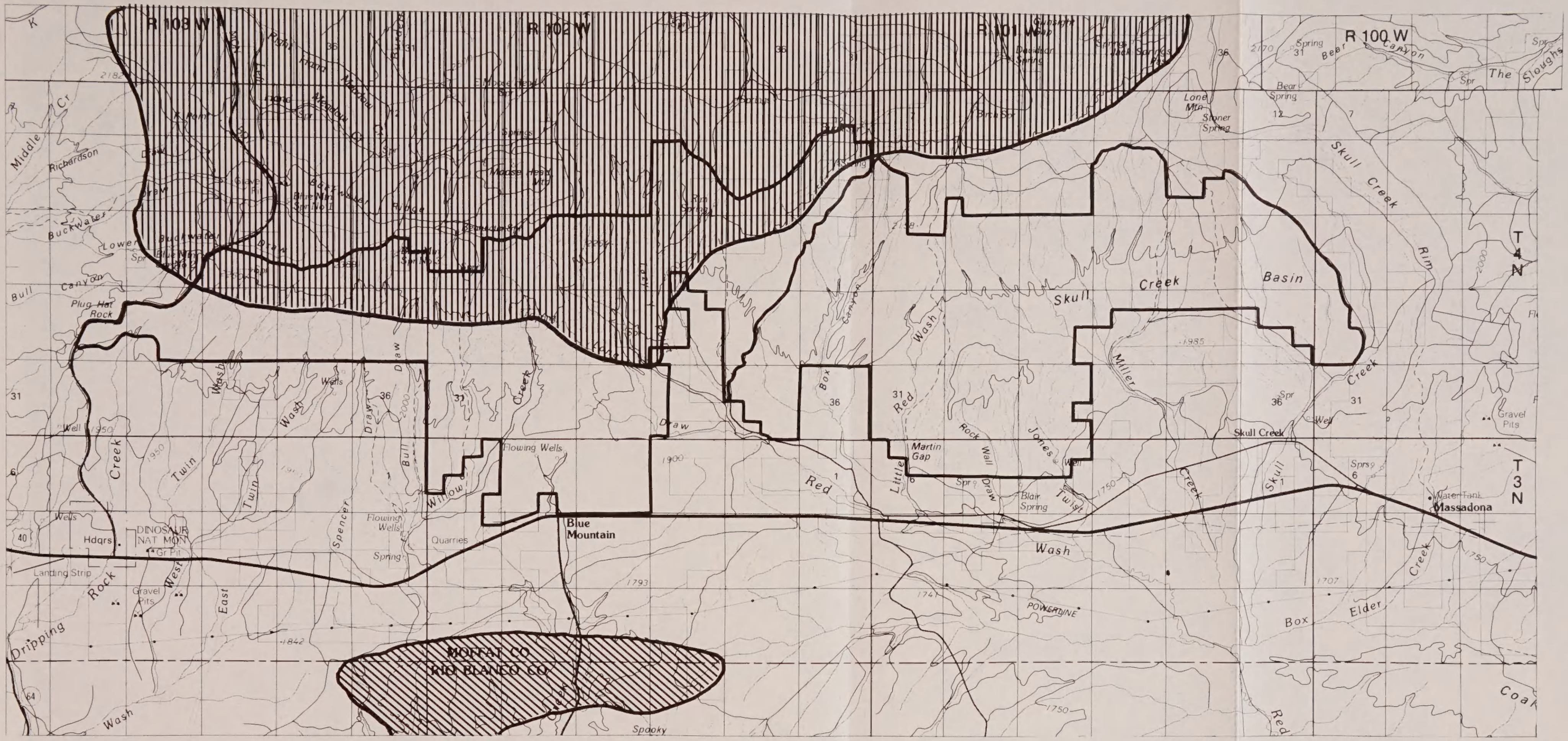
MILES 1 0 1 2 3 4 5

N

Map 3-7. Willow / Skull Creek - Mule Deer Habitat (Data Provided By Colorado Division of Wildlife - Unless Otherwise Indicated Area is Winter Range)

Summer Range ▨

Severe Winter Range ▧



WILLOW/SKULL CREEK

KILOMETERS 1 0 1 2 3 4 5 6 7 8

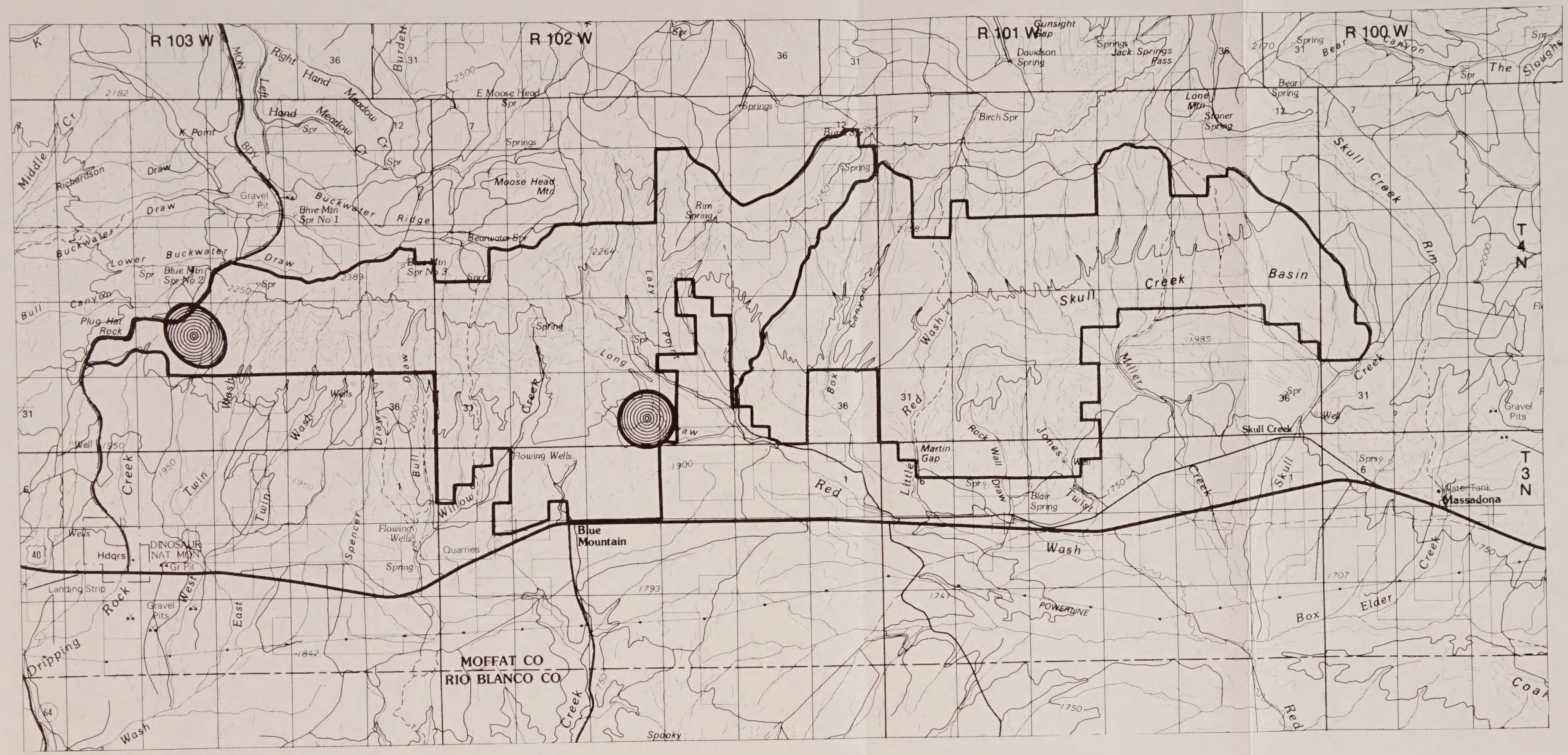
MILES 1 0 1 2 3 4 5

N

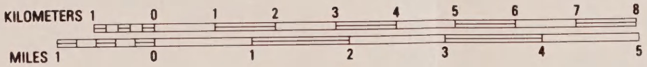
Map 3-8. Willow/Skull Creek-Elk Habitat
(Data Provided by Colorado Division of Wildlife-
Unless Otherwise Indicated Area is Winter Range)

Summer Range ▥

Severe Winter Range ▨

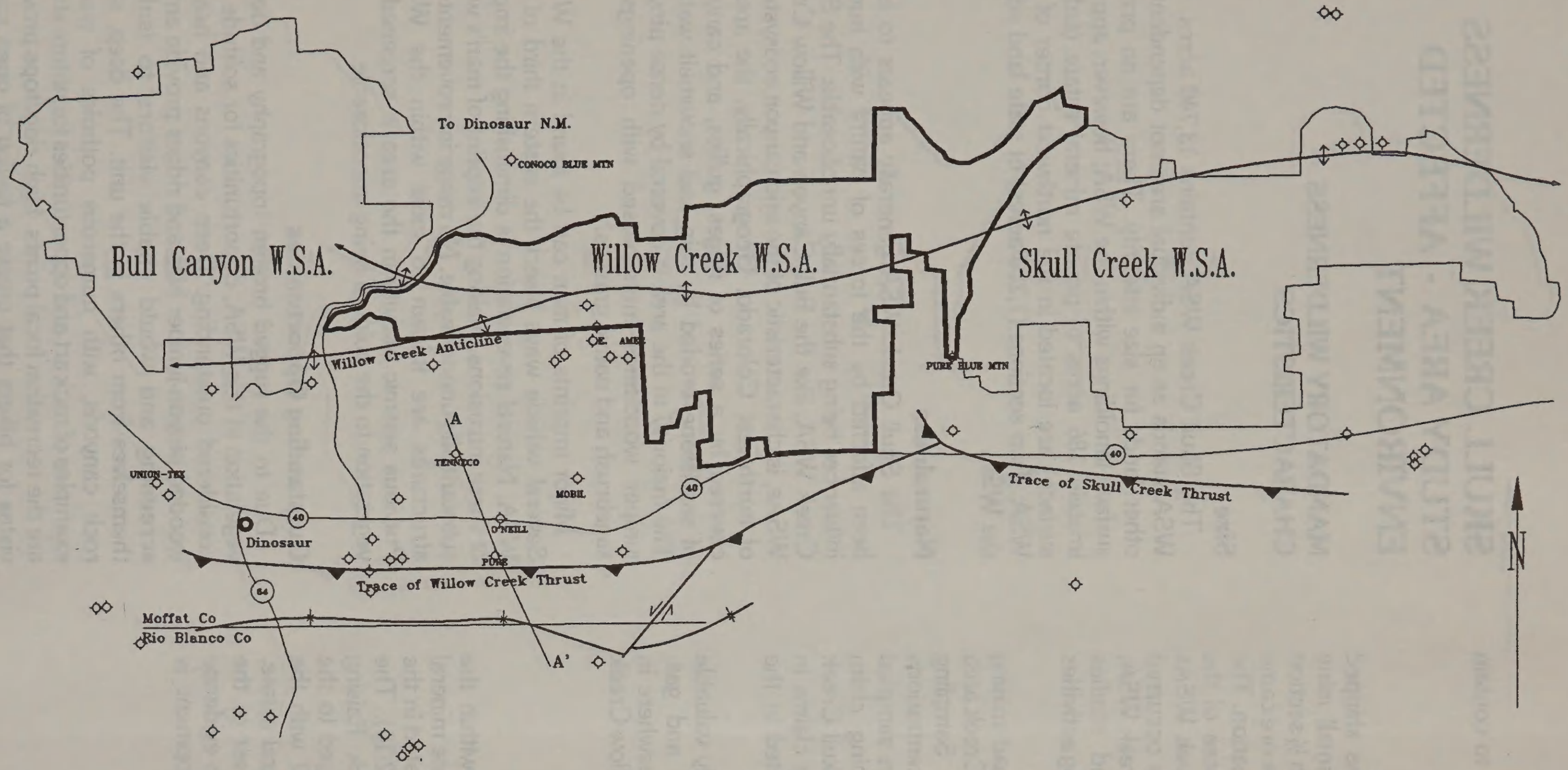


WILLOW/SKULL CREEK



Map 3-9. Willow Creek - Golden Eagle Nest Locations

Golden Eagle Nests ◎



Map 3-10
Geologic Structure and Wells near the Bull Canyon and Willow and Skull Creek WSAs

Geology From: Powers (1986) and Rowley, et. al. (1985) Printed with permission
Oil and Gas Wells From: Hotline data (1/3/89)
(all subthrust wells are labeled)

Explanation

Anticline

syncline

Thrust Fault

Fault

WSA Boundary

Dry oil and gas well ◇

0 1 mile

suggest that the likelihood of these WSAs to contain economic oil and gas deposits is minimal.

Other Minerals

In 1903 several tons of uranium ore was shipped to France for radium extraction from a small mine located south of the Skull Creek WSA (North ½ section 35, Township 4 North, Range 101 West). The ore came from the Curtis Member of the Stump Formation. The Curtis Member is found throughout the area of the Bull Canyon, Willow Creek, and Skull Creek WSAs (see Map 3-11). No sampling or mining has occurred on the Curtis Member within the Willow Creek WSA. Given the history of mining claims and studies conducted in the area, it is unlikely any mining activities would take place in the WSA.

Several of the same formations which had mining claims and sampling conducted in the Skull Creek area also appear in the Willow Creek WSA. Sampling conducted in the WSA shows lower concentrations of the copper minerals than found in the sites sampled around Skull Creek Anticline. Past mining claim interest in the area has also centered on Skull Creek and its surroundings. There are no mining claims in the WSA and no development is anticipated in the foreseeable future.

The WSA is not considered prospectively valuable for any mineral resource other than oil and gas. Formations which bear coal or oil shale elsewhere in northwest Colorado are eroded from the Willow Creek WSA.

PRIVATE LANDS

There is no private surface ownership within the WSA boundary. However, 94 acres of private mineral estate with federal surface ownership is located in the northeast corner of the WSA (see Map 2-10). The land was patented under the 1916 Stock Raising Homestead Act. The surface was reconveyed to the BLM as a part of a land exchange in 1957 with the landowner retaining ownership of the mineral estate. The property is similar in nature to the rest of the WSA and is currently used for grazing. No evidence of previous mineral exploration or development is noticeable.

SKULL CREEK WILDERNESS STUDY AREA - AFFECTED ENVIRONMENT

MANDATORY WILDERNESS CHARACTERISTICS

Size

The Skull Creek WSA contains 13,740 acres. The WSA stands as an individual area not dependent on other lands for size integrity. There are no private surface inholdings within the WSA; however, approximately 186 acres of private mineral estate (federal surface) are located in the northwest corner of the WSA. Two sections (1,280 acres) of state land adjoin the WSA.

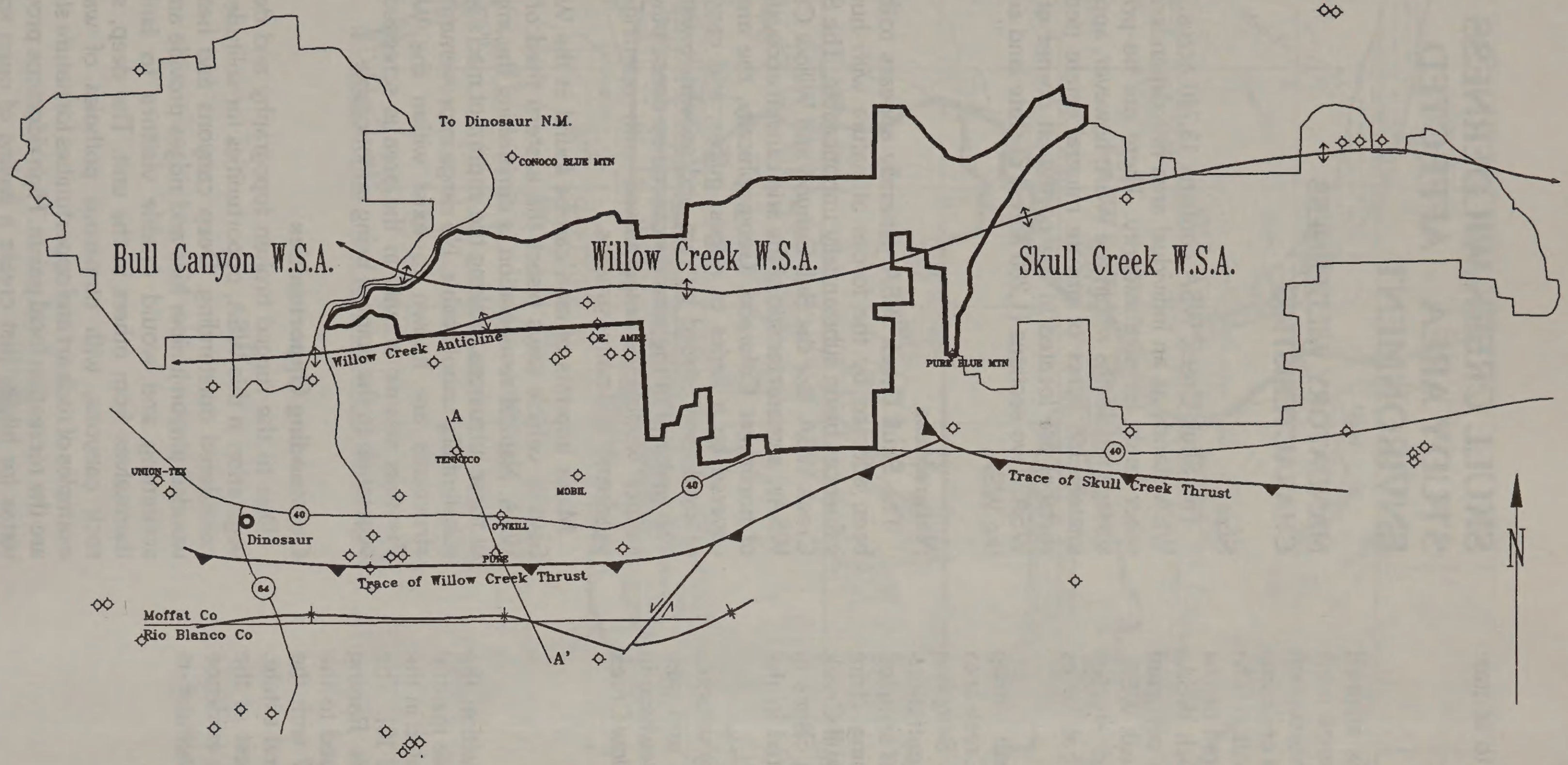
Naturalness

The Skull Creek WSA generally appears to have been affected by the forces of nature with human influences being substantially unnoticeable. The Skull Creek WSA, like the Bull Canyon and Willow Creek WSAs, is characteristic of the arid canyon ecosystems of northwest Colorado. Geographically, the area is covered by a series of ridges, gullies, and canyons of sandstone eroded by rain and snowmelt waters. The majority of the area is covered by dense pinyon-juniper woodlands interspersed with openings of sagebrush and native grasses.

Minor imprints of man can be found in the WSA. Several vehicle ways bisect the eastern third of the WSA. Natural revegetation is diminishing the impact of these intrusions, making the imprint of man's work substantially unnoticeable. No range improvements or structures are known to exist within the WSA. Previous seismic activity in the area is screened by vegetation to the point of being unnoticeable.

Outstanding Opportunities

Due to the rugged broken topography and dense vegetation in this WSA, opportunities for solitude are considered outstanding. Deep canyons and heavily wooded pinyon-juniper hills and ridges provide ample screening and would enable visitors to isolate themselves from others in the unit. The deep, slick rock canyons, with numerous potholes of water, examples of rock art and opportunities for nature study are the recreation focal points. High ridgetops provide vistas for hikers that create a feeling of open space



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Geologic Structure and Wells near the Bull Canyon and Willow and Skull Creek WSAs

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Oil and Gas Wells From: Hotline data (1/3/89)
(all subthrust wells are labeled)

Explanation

Anticline

syncline

Thrust Fault

Fault

WSA Boundary

Dry oil and gas well ◇

0 1 mile

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Minor imprints of man can be found in the WSA. Several vehicle ways bisect the eastern third of the WSA. Natural revegetation is diminishing the impact of these intrusions, making the imprint of man's work substantially unnoticeable. No range improvements or structures are known to exist within the WSA. Previous seismic activity in the area is screened by vegetation to the point of being unnoticeable.

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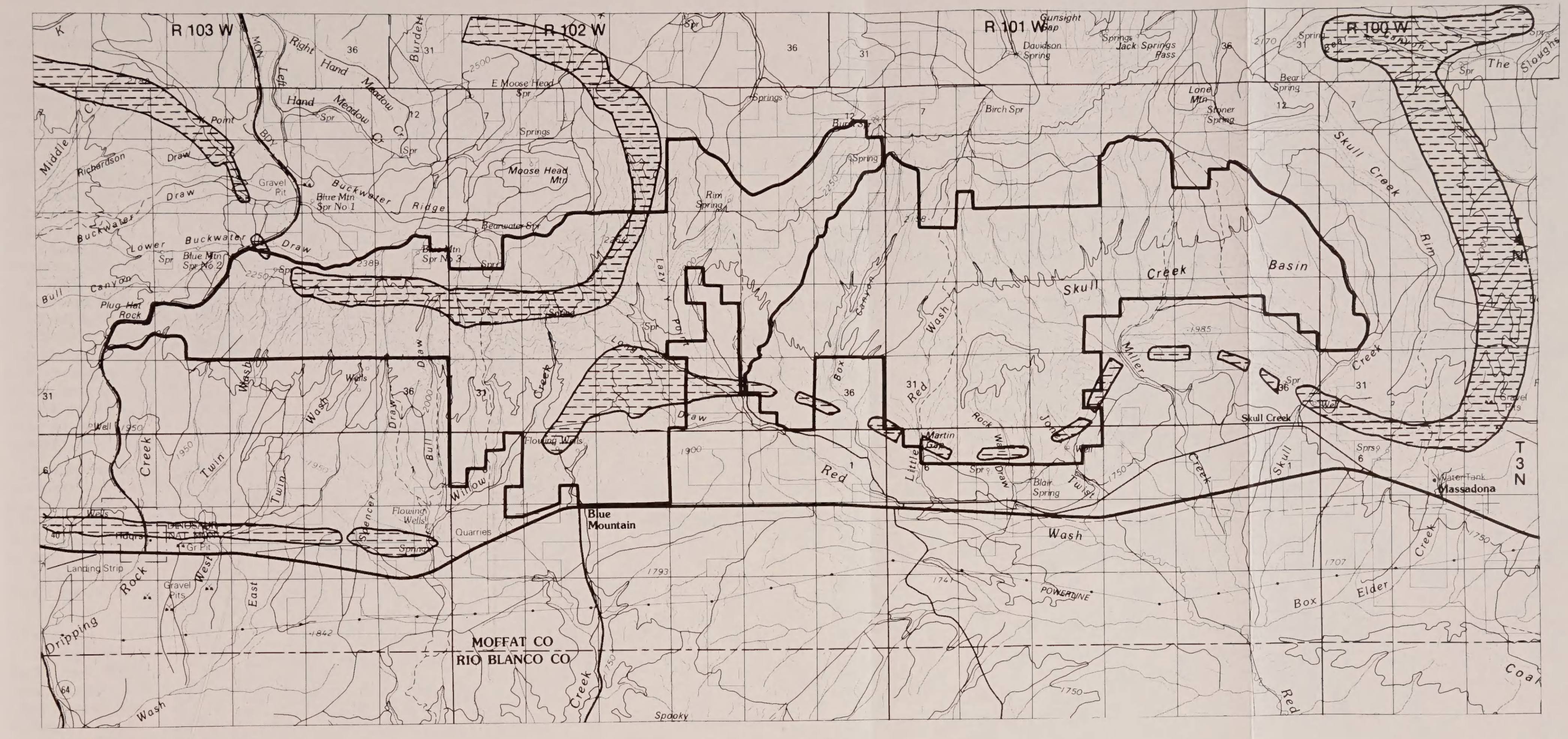
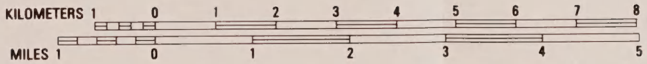


WILLOW/SKULL CREEK



Map 3-11 Willow Creek - Outcrop of Stump/Entrada/Carmel Formations andCarmel Formation Mineral Sampling Sites

▨ Outcrop of Stump/Entrada/CarmelFormation

that enhances the feeling of solitude. The area offers opportunities for users to participate in primitive and unconfined recreational activities including hiking, backpacking, camping, hunting, sightseeing, photography, and horseback riding. Much of the western portion of the WSA is so rugged that foot or horseback travel is the only way to access the area.

Special Features

The Skull Creek WSA is located within the boundary of the 1976 Skull Creek Environmental Study Area, a 58,626 acre area that was first recognized in 1975 as containing an interesting array of natural history resources. Cultural resources identified during the 1976 study include substantial archaeological and cultural sites dating back 10,000 years. Sites have been found with sufficient depth and unaltered surface area to provide scientific data. Granaries and one walled rock shelters were located in sandstone faces. A few badly weathered pictographs and a single wickiup cluster were also found. Artifacts found in the WSA include projectile points, knives, drills, scrapers, choppers, grinding stones, pottery, and juniper bark matting.

The University of Arizona conducted a dendrochronological analysis of wood samples from relic pinyon pine in the Skull Creek Basin. Their analysis showed the trees to be at or near the maximum age attainable by the species. The research provides a data base for dendrochronological reconstruction of local climate extending back 600 years. Continued research in the Skull Creek WSA is anticipated.

Diversity

Like the Bull Canyon and Willow Creek WSAs, the Skull Creek WSA has also been classified under the Bailey-Kuchler ecosystem classification system as being representative of the Rocky Mountain Forest Ecoregion. The potential natural vegetation is juniper-pinyon woodland and sagebrush steppe. The ecosystems represented are Rocky Mountain Forest, sagebrush steppe (M3110-49) and Rocky Mountain Forest, juniper-pinyon woodland (M3110-21). The Rocky Mountain Forest, sagebrush steppe ecosystem is found in only 2 designated wilderness within 200 air miles (approximately one day's drive). Dinosaur National Monument, however, (an area administratively endorsed for wilderness designation) is less than seven miles from the WSA and is representative of this ecosystem. The Rocky Mountain Forest, juniper-pinyon ecosystem is represented within 200 air miles by the Desert Peak wilderness area in Utah and Dinosaur National Monument administratively endorsed). Existing and potential wilderness areas within 200 miles of the Skull Creek WSA are shown in Appendix A.

Of areas currently under wilderness study in Colorado, 13 BLM areas have Rocky Mountain Forest, juniper-pinyon woodland ecosystems. An additional 9 BLM areas, totaling 41,809 acres have a Rocky Mountain Forest, sagebrush steppe ecosystem.

This WSA is two and one-half to three hours from the closest metropolitan area (Grand Junction, Colorado) and approximately five hours from both Denver and Salt Lake City.

RANCHING OPERATIONS

Portions of four livestock grazing allotments lie within the Skull Creek Wilderness Study Area. Allotment management plans estimate that 527 AUMs of livestock forage are available within the WSA. Allotment boundaries for both Willow Creek and Skull Creek WSAs are shown on Map 3-6.

Allotment 6308 includes 1,470 acres and 47 AUMs within the WSA. Total federal land within allotment 6308 is 44,958 acres with 4,045 AUMs. Allotment 6321 includes 100 acres but has no current use within the WSA. Total federal land within allotment 6321 is 1,160 acres with 75 AUMs. Allotment 6322 includes 4,170 acres and 156 AUMs within the WSA. Total federal land in allotment 6322 is 8,108 acres with 226 AUMs. Allotment 6323 includes 8,000 acres and 324 AUMs within the WSA. Total federal land within allotment 6323 is 53,155 acres with 4,474 AUMs. Allotments 6308 and 6321 graze sheep during the winter and spring. Allotment 6322 grazes cattle during fall, winter, and spring. Allotment 6323 grazes cattle year round.

Although not inventoried, ecological range condition in the WSA is estimated to be 87 percent excellent, 2 percent good, 8 percent fair, and 3 percent poor.

No range improvements are known to exist on the Skull Creek WSA.

RECREATION USE AND QUALITY

The Skull Creek WSA provides a setting for semi-primitive motorized and primitive nonmotorized recreation and offers outstanding opportunities for primitive and unconfined recreation. Current activities include hunting, camping, hiking, and horseback riding.

Deer and elk hunting within the WSA is considered good. Hunting use is estimated to be 400 hunter days per year. Hunting use has an estimated 50 off-road vehicle (ORV) user days associated with it. Nonhunting uses are estimated at 300 visitor days per year for activities such as hiking, photography, and horseback riding. Access to the WSA is by way of roads forming the east and west boundaries of the unit.

WATER QUALITY

Water quantity and quality data is very limited for the WSA with only one measurement of spring and seeps in the area. Estimates have been provided based on averages for the vicinity. There are no perennial streams within the WSA. The sediment yield produced from snowmelt and rainfall runoff is estimated at 0.5 tons per acre per year overall for the WSA. This is average for the vicinity of the WSA and no special or unique conditions exist within the WSA. The estimate is based on an assumption that the potential erosion rate of 2.5 tons per acre per year produces a sediment yield of about 20 percent, or 0.5 tons per acre per year.

The seven springs within, and four springs outside of which contribute to the WSA, have an average total dissolved solid content of about 1,862 mg/l (the drinking water standard is 500 mg/l). The springs have a combined estimated peak flow of about 14 gallons per minute.

The WSA is estimated to contribute about 58 tons of salts (total dissolved solids) per year from the springs and runoff to the White River. The White River is the nearest perennial stream, and the watershed in which the WSA lies. Both sediment yield and salt contributions may vary up to 25 percent from year to year depending on the intensity and duration of precipitation.

BIG GAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Deer and elk, which are important big game wildlife species, and golden eagles, which are a species of concern, inhabit the Skull Creek WSA. The following discussion is based on data provided by the Colorado Division of Wildlife (CDOW, 1987). The seasons of use for deer and elk are approximate and indicate when the majority of use is anticipated to occur. While an area might be identified as deer winter range, some deer would probably be found in the WSA during the summer and fall.

About 190 deer inhabit the 13,740 acre Skull Creek WSA during the winter months. Approximately 7,700 deer inhabit the 860 square miles within Colorado Division of Wildlife's (CDOW) Data Analysis Unit D-6 (see Map 3-2) of which the WSA is a part. The CDOW has identified the entire 13,740 acre WSA as deer winter range. Deer occupy these ranges from the middle of November and migrate to higher elevations by the end of May. The WSA comprises 2.9 percent of the winter range (area used in an average winter and spring) in CDOW's Data Analysis unit D-6. None of the WSA is considered a winter concentration area (wintering area with a high density of animals) or a severe winter range (area where animals congregate during an extremely harsh winter) or critical habitat. See Map 3-7 for more information on mule deer habitat in the area.

About 10 elk inhabit the WSA. Approximately 400 elk inhabit the 860-square-mile Data Analysis Unit E-21 of which the WSA is a part. Data Analysis Units D-6 and E-21 have the same geographical boundaries; "D" denotes deer, and "E" denotes elk.

The CDOW has identified the entire 13,740 acre WSA as elk winter range, which elk occupy from the first of December through April. They migrate to higher elevations by the end of April.

The WSA comprises about 3.1 percent of the winter range within Data Analysis Unit E-21. None of the WSA is within a winter concentration area, severe winter range, or critical habitat. See Map 3-8 for more information on elk habitat in the area.

Three golden eagle nests are known to occur in the WSA. These three nest sites appear to comprise three nesting territories. Up to three pair of eagles may simultaneously use the WSA. The locations are shown on Map 3-12. Up to 10 pairs of golden eagles may nest within five miles of the Bull Canyon, Willow Creek, and Skull Creek WSAs.

The WSA has not received a thorough raptor inventory. Additional cliff nesting (i.e., red tailed hawk) and woodland nesting (i.e., Coopers hawk and long eared owl) raptors undoubtedly occupy the WSA.

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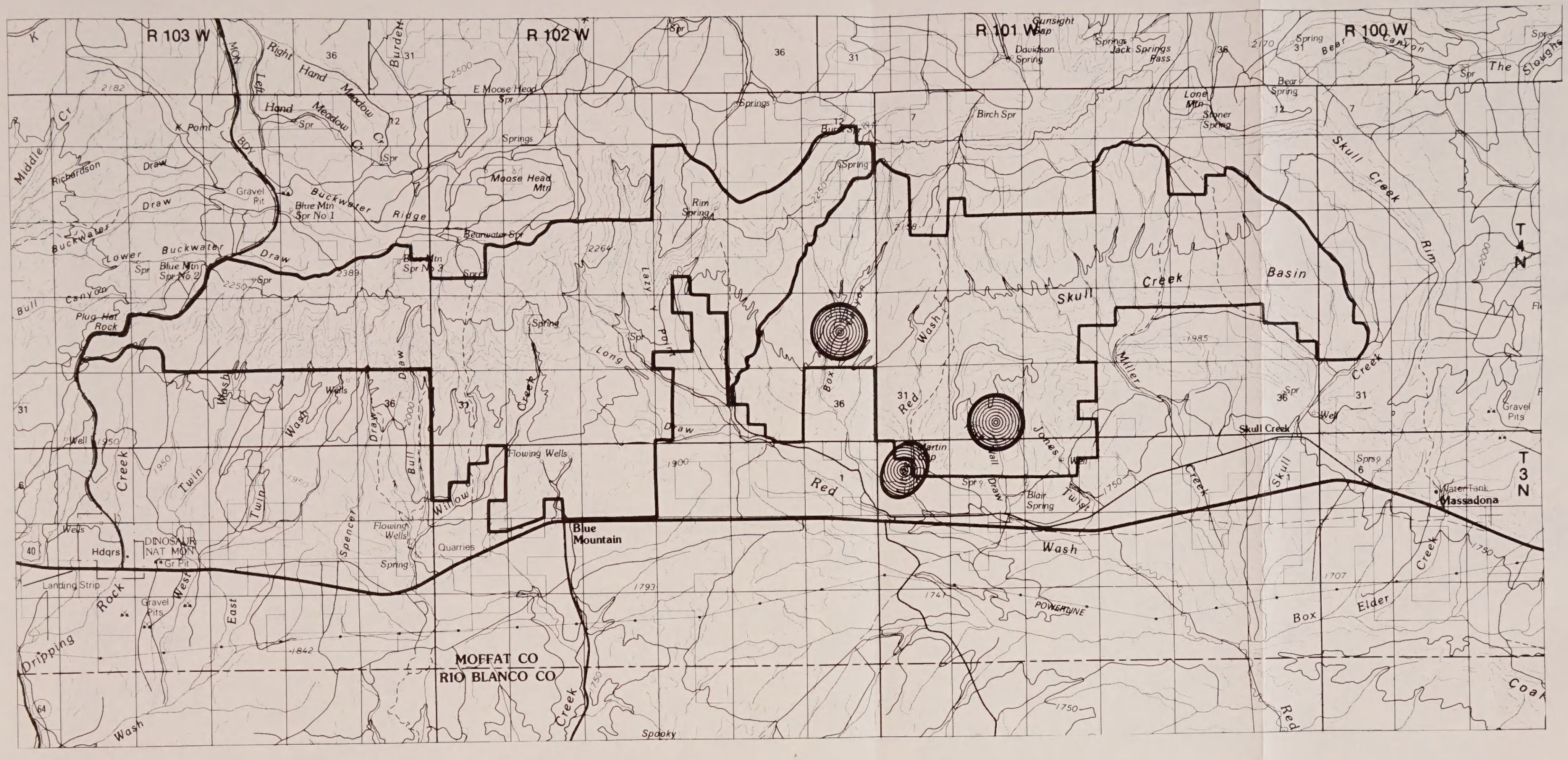
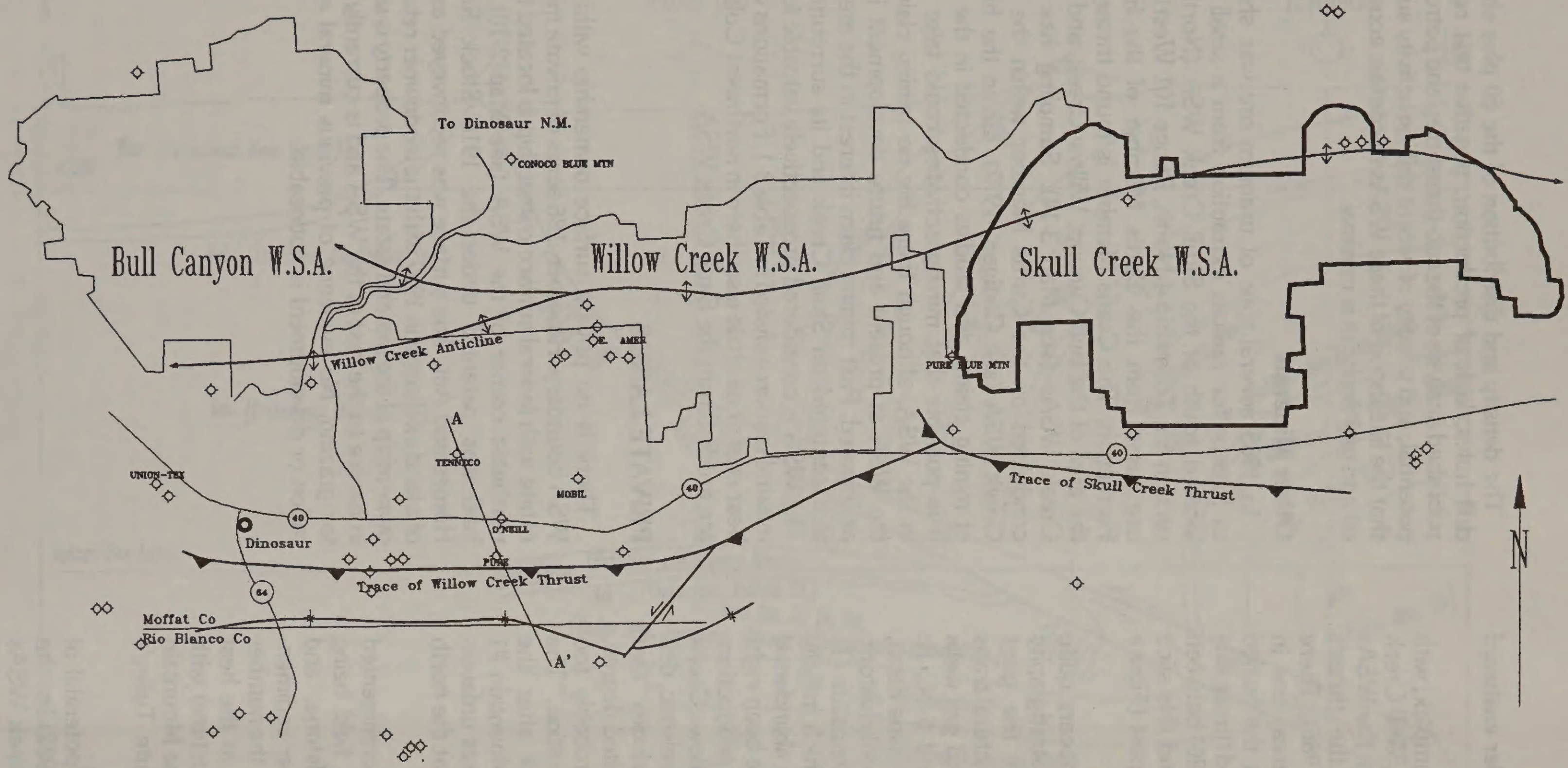
The Bull Canyon, Willow Creek and Skull Creek WSAs lie 12 miles north of the giant Rangely Oil Field,



WILLOW/SKULL CREEK

Map 3-12. Skull Creek- Golden Eagle Nest Locations

Golden Eagle Nests ◎



Map 3-13
Geologic Structure and Wells near the Bull Canyon and Willow and Skull Creek WSAs

Geology From: Powers (1986) and Rowley, et. al. (1985) Printed with permission
Oil and Gas Wells From: Hotline data (1/3/89)
(all subthrust wells are labeled)

Explanation

Anticline

syncline

Thrust Fault

Fault

WSA Boundary

Dry oil and gas well ◇

0 1 mile

in a contiguous band from the Utah border eastward for 20 miles.

The Geologic structure in the area is complex, with rocks from the southeasterly transported Skull Creek and Willow Creek thrust sheets exposed in the WSAs (Map 3-13), and the surface trace of the thrusts exposed south of the WSAs (Hansen, 1986). There are two separate anticlinal axis in the area, one in the overlying thrusts sheets, and one in the buried sedimentary layers. The recumbently folded thrust axis has caught a thin thrust slice (Powers, 1986) between the two major sedimentary sequences, and this slice has also been a target for drilling in the past (Figure 3-3).

The potential for oil and gas initially appears quite high in these WSAs, with the doubled stratigraphy below the thrust slice, the proximity of the giant Rangely Oil Field, and the presence of structural traps in the area. However, while over 70 oil and gas wells have been drilled in the area (T. 3, 4 and 5 N., R. 100 - 104 W.) through January 1 1988 (Hotline data), all have been plugged and abandoned. The only historic oil production was the Twin Arrow #2 Dinosaur (T. 3 N., R. 104 W., S. 4) drilled in 1975, which initially produced five barrels of oil per day. It was abandoned in 1981 due to low production). There have been eight sub-thrust holes drilled with no reported production. Powers (1986) has analyzed this "Willow Creek Foreland Sub-thrust Play," and combining seismic, drill hole, test and surfacial geologic data concludes "that shows exist only in tight rocks and to a limited degree, and the remaining sub-thrust area is probably too restricted to justify further economic exploration." The recent lapse of the Blue Mountain Unit after the unreported results of the Conoco Blue Mountain #1 well, drilled in late 1987-early 1988, suggests unfavorable conditions for oil and gas production at the north boundary of the WSAs.

The Tulley Corporation and others have commented on the possibility of a Rangely-sized oil field being present in the sub-thrust Weber Sandstone, and possible producible oil and gas in the upper sedimentary sequence. The work of Powers (1986), the number and distribution of exploration drill holes at the best targets (from geophysics and surface structure) with their poor results, and the lapse of the Blue Mountain Unit (by lack of exploration drilling) refute Tulley's claims.

The USGS report covering petroleum potential of wilderness lands in Colorado (Spencer, 1982) list the Bull Canyon, Skull Creek, and Willow Creek WSAs as having low petroleum potential.

The density and distribution of the 60 plus shallow drill holes, lack of production, negative test results, published analysis of the sub-thrust play and petroleum potential, and paucity of recent drilling activity suggest that the likelihood of these WSAs to contain economic oil and gas deposits is minimal.

Other Minerals

In 1903 several tons of uranium ore was shipped to France for radium extraction from a small mine located south of the Skull Creek WSA (North 1/2 section 35, Township 4 North, Range 101 West). The ore came from the Curtis Member of the Stump Formation. The Curtis Member is found throughout the area of the Bull Canyon, Willow Creek, and Skull Creek WSAs (see Map 3-14). Sampling has been conducted on the Curtis Member within the Skull Creek WSA (see Cadigan, 1972). Given the history of mining claims and studies conducted in the area, it is possible that mining activities could take place in the WSA, although there are no mining claims in the WSA at present and future development is not anticipated. Past mining claim interest in the area has also centered on Skull Creek and its surroundings. The WSA is considered prospectively valuable for the mineral resources listed in Table 3-1. Formations which bear coal or oil shale elsewhere in northwest Colorado are eroded from the Skull Creek WSA.

PRIVATE LANDS

There is no private surface ownership within the WSA boundary. However, 186 acres of private mineral estate with federal surface ownership is located in the northeast corner of the WSA (see Map 2-10). The land was patented under the 1916 Stock Raising Homestead Act. The surface was reconveyed as part of a land exchange in 1957 with the landowner retaining ownership of the mineral estate. The property is similar in nature to the rest of the WSA and is currently used for grazing. No evidence of previous mineral exploration or development is noticeable.

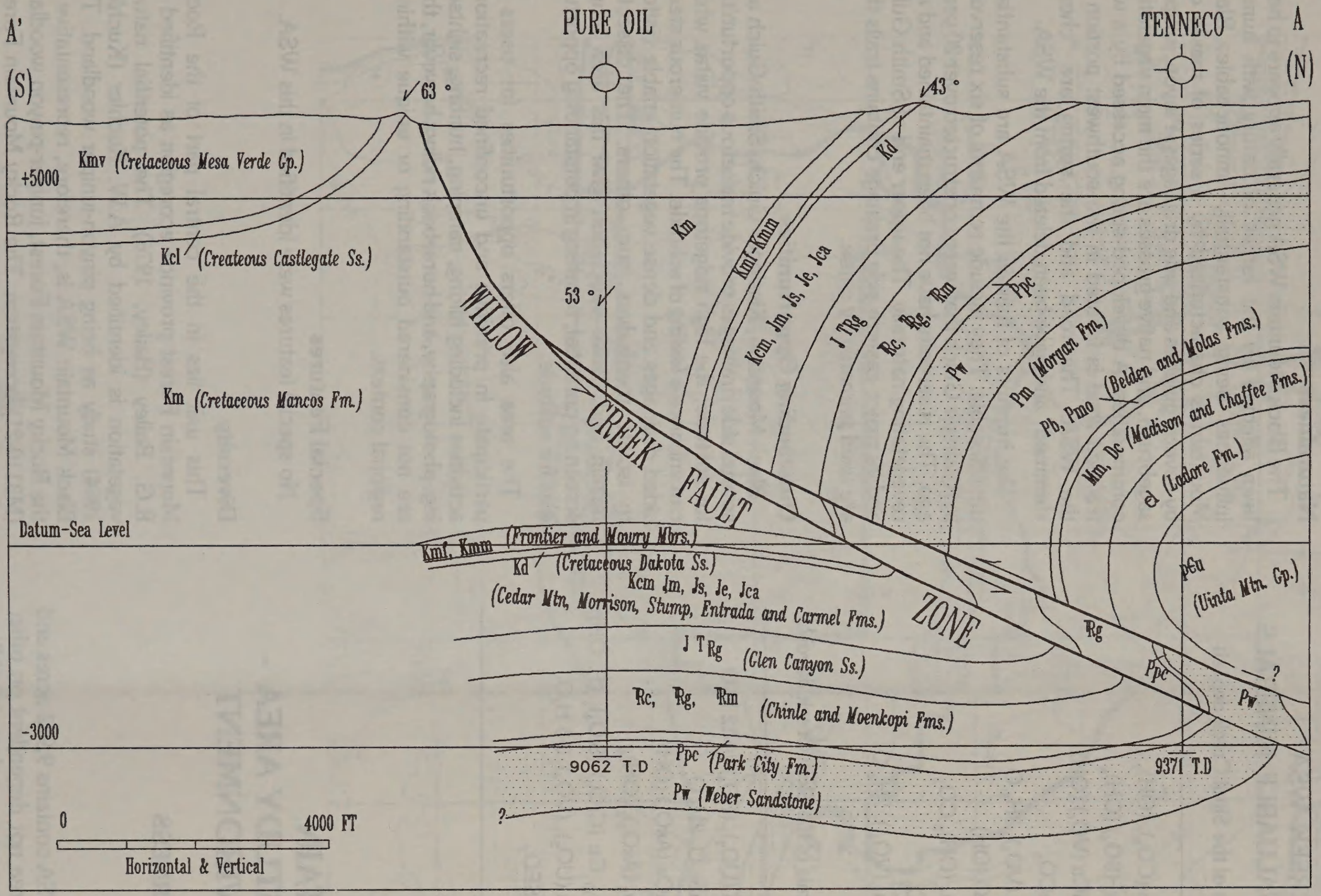


Fig. 3-3

Willow Creek Anticline

Geology from: Powers, 1986 *printed with permission*

Explanation

+5000 Elevation (feet)

Thrust Fault

43 ° Dip of Bedding

Oil and Gas Exploration Well

located as A-A' on map 3- , Geologic Structure and Wells Near Bull Canyon and Willow and Skull Creek WSAs

TABLE 3-1
SKULL CREEK WSA PROSPECTIVELY VALUABLE MINERALS

Previously reported minerals of the Skull Creek deposit

Azurite	$Cu (CO_3)_2 (OH)_2$
Brochantite	$Cu_4 (SO_4) (OH)_6$
Calciovoborthite	$CaCu (VO_4) (OH)$
Calcite	$CaCO_3$
Carnotite	$K_2 (VO_4)_2 3H_2 O$
Geothite	$FeO (OH)$
Malachite	$Cu_2 (OH)_2 CO_3$
Urannite	UO_2
Volborthite	$Cu_3 (VO_4)_2 3H_2 O$

Previously unreported minerals of the Skull Creek deposit

Auntunite	$Ca (UO_2)_2 (PO_4)$ 10-12 H_2O
Chalcomenite *	$CuSe O_3 2H_2 O$
Conichalcite	$CaCu (AsO_4) (OH)$
Cornubite	$Cu_5 (AsO_4)_2 (OH)_4$
Iranite *	$Pb_{10} Cu (CrO_4) (SiO_4)_2 (F, OH)_2$
Metatyuyamunite	$Ca (UO_2)_2 (VO_4)_2$ 3-5 H_2O
Molybdomenite *	$PbSEO_3$

* New species for Colorado

From Brownfield 1986

BLACK MOUNTAIN WILDERNESS STUDY AREA - AFFECTED ENVIRONMENT

MANDATORY WILDERNESS CHARACTERISTICS

Size

The Black Mountain WSA contains 9,932 acres and stands as an individual area not dependent on other lands for size integrity. There are no private inholdings or adjoining state sections.

Naturalness

The Black Mountain WSA generally appears to have been affected by the forces of nature with human influences being substantially unnoticeable. Black Mountain is characterized by a series of mesas cut by several gulches and side drainages. Pinyon, juniper, sagebrush, and native grasses are the main vegetation communities. A developed spring accessed by a well traveled road is located in the southwest portion of the WSA. The road and the spring are "cherry stemmed" and have been deleted from the WSA.

The imprints of man in the WSA are substantially unnoticeable. They include remnants of six reservoirs in Kissinger Gulch that were constructed over 20 years ago. The reservoirs have not been maintained and are revegetating naturally. The upper end of Smith Gulch and its major eastern side drainage contains trails that are used primarily by cattle.

Outstanding Opportunities

Black Mountain, Kissinger Gulch, Smith Gulch and several side drainages provide numerous opportunities for solitude; the high ridgetops provide vistas which can enhance a feeling of solitude. The numerous steep-sided drainages and dense vegetation enable visitors to isolate themselves from others. The dissected terrain and dense vegetation give this area ample screening potential, resulting in outstanding opportunities for solitude.

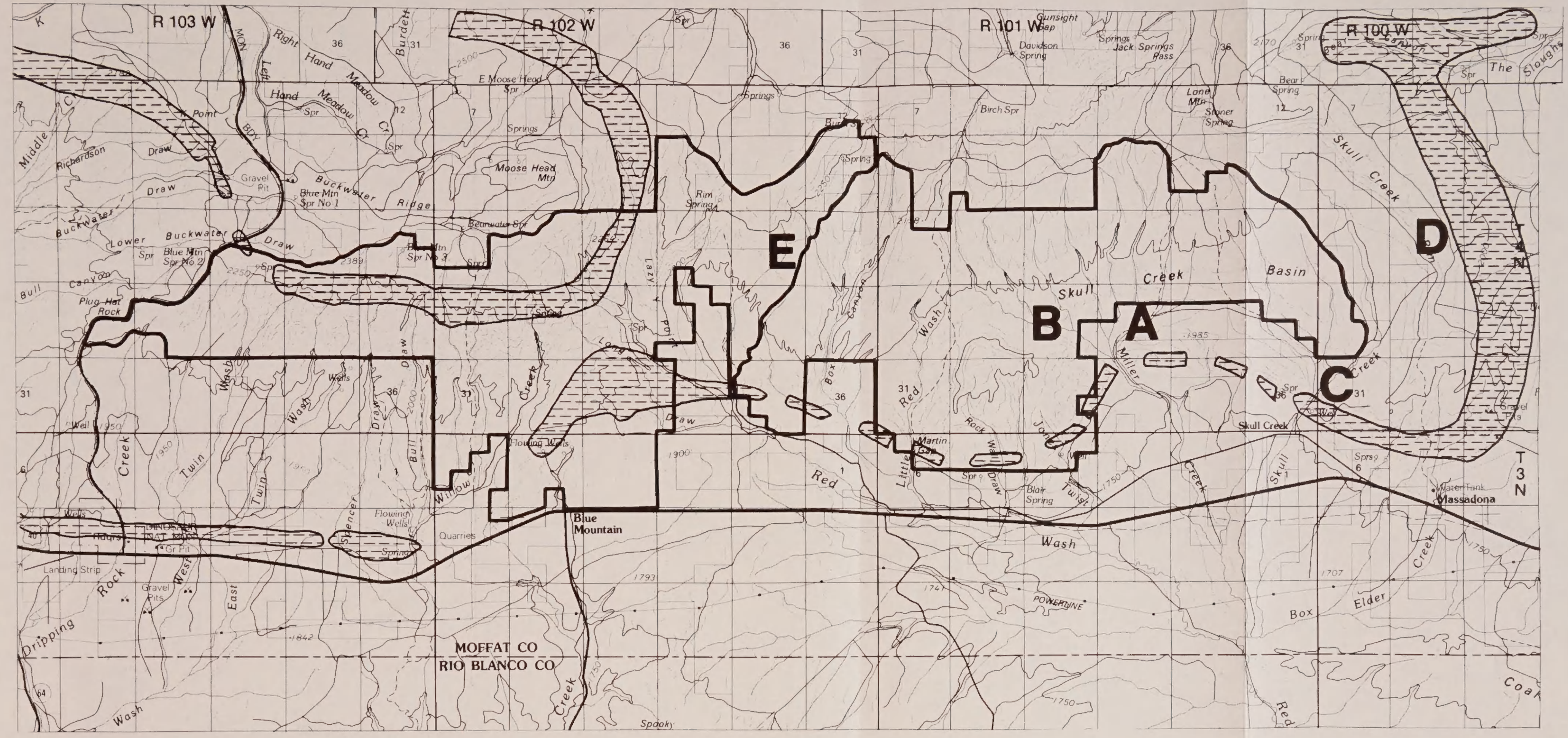
The area also offers opportunities for users to participate in primitive and unconfined recreational activities including hiking, camping, hunting, sightseeing, photography, and horseback riding; however, they are not considered outstanding or unique within a regional context.

Special Features

No special features were identified in this WSA.

Diversity

This unit lies in the central part of the Rocky Mountain Forest province ecoregion as identified by R.G. Bailey (Bailey, 1976). The potential natural vegetation is identified by A.W. Kuchler (Kuchler, 1964) study as being pinyon-juniper woodland. The Black Mountain WSA is, therefore, representative of the Rocky Mountain Forest, juniper-pinyon woodland (M3110-21) ecosystem. The Rocky Mountain Forest, juniper-pinyon ecosystem is represented within 200 air miles by the Desert Peak wilderness area in Utah and Dinosaur National Monument (administratively



WILLOW/SKULL CREEK

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

Map 3-14. Skull Creek - Outcrop of Stump/Entrada/Carmel Formations andCarmel Formation Mineral Sampling Sites

Outcrop of Stump/Entrada/CarmelFormation ▨

Source: Cadigan U.S.G.S. pp.761, 1972

endorsed). Existing and proposed wilderness areas within 200 air miles are shown in Appendix A. Of areas currently under wilderness study in Colorado, 13 BLM areas have Rocky Mountain Forest, juniper-pinyon woodland ecoystems. The WSA is about 40 miles from the designated Flat Tops Wilderness Area.

The WSA is two and one-half hours from the closest metropolitan area (Grand Junction, Colorado) and approximately five hours from both Denver and Salt Lake City.

RANCHING OPERATIONS

Portions of three livestock grazing allotments lie within the Black Mountain WSA. Allotment management plans estimate that 635 AUMs of livestock forage are available within the WSA. Allotment boundaries are shown on Map 3-15.

Allotment 6621 includes 7,502 acres and 368 AUMs within the WSA. Total federal land within allotment 6621 is 8,570 acres with 391 AUMs. Allotment 6612 has 1,590 acres and 183 AUMs within the WSA. Total federal land within allotment 6612 is 24,770 acres with 2,609 AUMs. Allotment 6613 has 840 acres and 84 AUMs within the WSA. Total federal land within allotment 6613 is 8,657 acres with 898 AUMs.

Allotment 6613 grazes cattle in the spring; allotment 6621 grazes cattle during spring, fall, and winter; and allotment 6612 grazes cattle year round.

Ecological range condition in the WSA is estimated to be 70 percent excellent, 10 percent good, 15 percent fair, and 5 percent poor.

Existing range improvements within the WSA consist of seven earthen stock ponds and 4 and one-half miles of fence.

RECREATION USE AND QUALITY

The Black Mountain WSA provides a setting for semi-primitive motorized and nonmotorized recreation. Although the area offers opportunities for primitive and unconfined recreation, they are not considered to be outstanding or particularly unique in a regional context. Nonmotorized forms of recreation (hiking, backpacking, sightseeing, and horseback riding) are estimated at less than 50 visitor days per year. Big game hunting use (primarily mule deer) is estimated at about 400 visitor days per year.

WATER QUALITY

No springs, seeps, or wells are known to occur in the WSA. There are also no perennial streams within the WSA. The sediment yield is estimated to be about 20 percent of the potential erosion rate (2.34 tons per acre per year) or 0.5 tons per acre per year. This is average for the vicinity and no special or unique conditions exist within the WSA.

Smith Gulch is an ephemeral stream which flows during snowmelt and thunder storms; it has an approximate flow of 400 acre feet per year based on measurements taken just outside the WSA boundary. The flow is about one cubic foot per second from March through June. During the course of the year, total dissolved solids average about 700 mg/l.

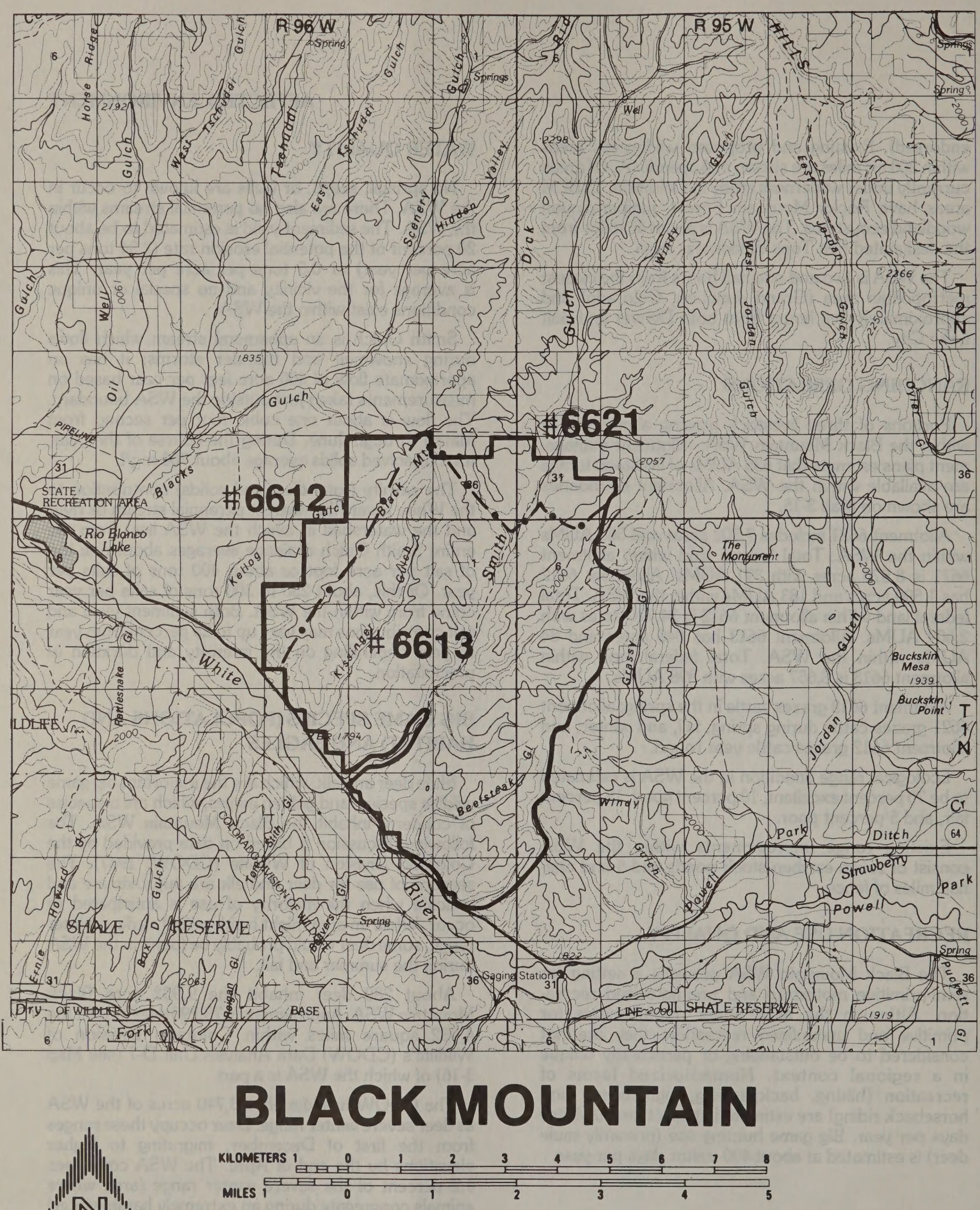
The salinity (total dissolved solids) contribution to the White River (the nearest perennial stream or river and the watershed in which the WSA lies) from the entire Smith Gulch drainage averages about one ton of salt per acre foot or about 400 tons of salts per year. Of this, about 250 to 300 tons of salts per year come from within the WSA. Both sediment yield and salt contributions may vary up to 25 percent from year to year depending on the intensity and duration of precipitation.

BIG GAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Mule deer and elk, which are the important big game wildlife species, and golden eagles, which are a species of concern, inhabit the Black Mountain WSA. The following discussion is based on data provided by the Colorado Division of Wildlife (CDOW, 1987). The seasons of use for deer and elk are approximate and indicate when the majority of use is anticipated to occur. While an area might be identified as deer winter range, some deer would probably be found in the WSA during the summer and fall.

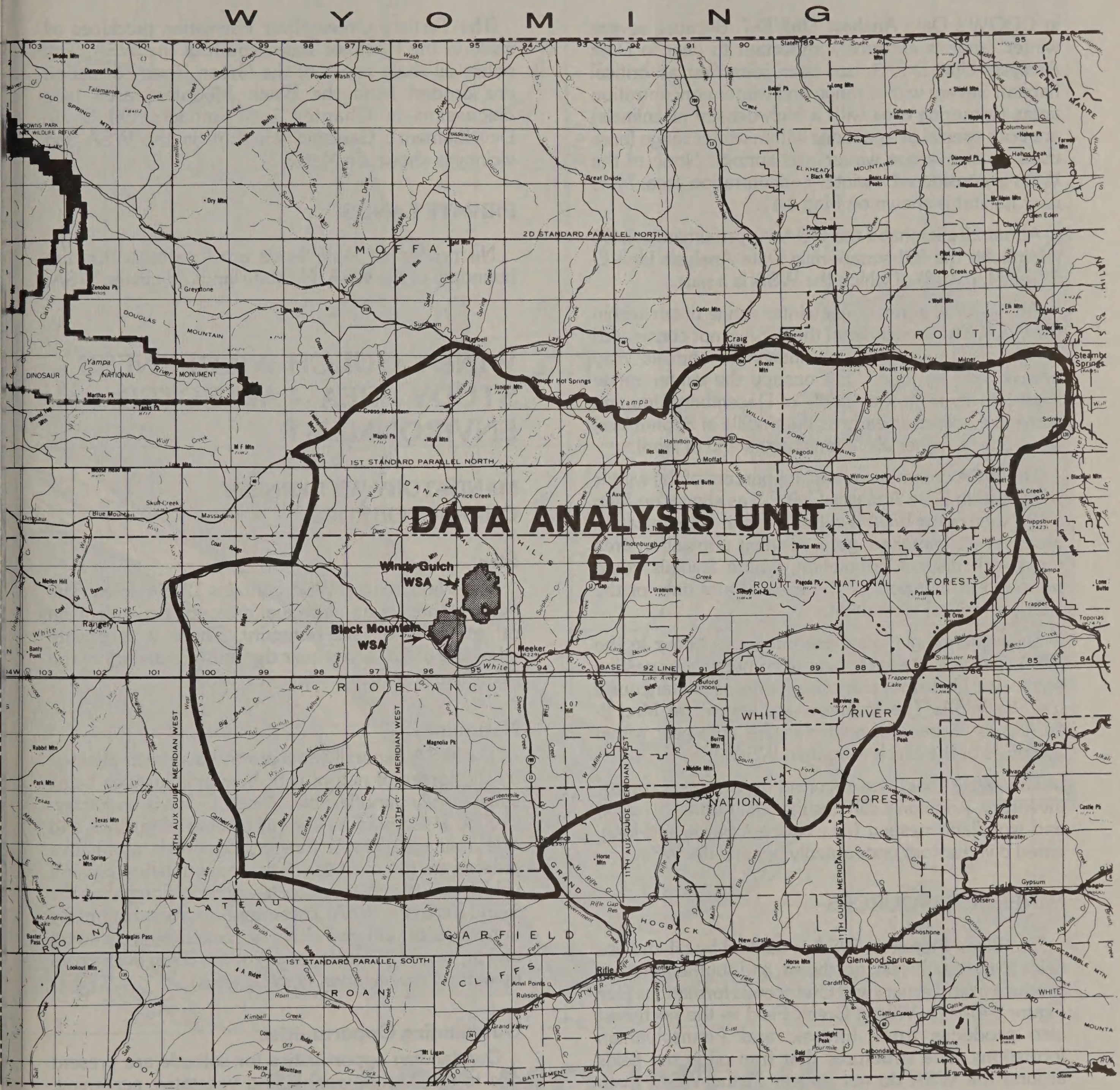
About 280 deer inhabit the 9,932 acre Black Mountain WSA. Approximately 73,290 deer inhabit the 4,082 square miles within Colorado Division of Wildlife's (CDOW) Data Analysis Unit D-7 (see Map 3-16) of which the WSA is a part.

The CDOW has identified 3,740 acres of the WSA as deer severe winter range. Deer occupy these ranges from the first of December, migrating to higher elevations by the end of April. The WSA comprises 1.2 percent of the severe winter range (area where animals congregate during an extremely harsh winter)



Map 3-15 Black Mountain - Allotment Boundaries

Grazing Allotments **6613**



Map 3-16. Colorado Division of Wildlife Data Analysis Unit D-7

Scale 1:1,000,000
1 inch equals Approximately 16 miles
10 0 10 20 30 40 Miles
10 0 10 20 30 40 50 Kilometers

N

in CDOW's Data Analysis Unit D-7. Because severe winter range is extremely important to deer in Data Analysis Unit D-7, it has been identified as critical habitat. Severe winter range and winter concentration areas (wintering area with a high density of animals) are both special designations within winter range (area used in an average winter and spring). None of the WSA is considered a winter concentration area. Mule deer habitat is shown on Map 3-17.

About 20 elk inhabit the WSA. Approximately 2,490 elk inhabit the 851-square-mile Data Analysis Unit E-5 (see Map 3-18) of which the WSA is a part.

About 3,750 acres of elk winter range occur within the WSA. The remainder of the WSA is not considered to be elk range although individual animals may occasionally be found. Elk occupy the winter range most heavily from the middle of December (although some use occurs as early as the middle of September) migrating to higher elevations by the end of April.

The WSA comprises about 1.1 percent of the winter range within Data Analysis Unit E-5 as shown on Map 3-19. None of the WSA is within a winter concentration area, severe winter range, a resident population area (area with distinct population, where animals could be found in any part of the area at any time of the year), or critical elk habitat.

Six golden eagle nests are known to occur in the WSA. These nest sites appear to comprise four nesting territories. Up to four pair of eagles may simultaneously use the WSA. The locations are shown on Map 3-20. Up to 15 pairs of golden eagles may nest within five miles of the Black Mountain WSA.

The WSA has not received a thorough raptor inventory. Additional cliff nesting (i.e., red-tailed hawk) and woodland nesting (i.e., coopers hawk and long-eared owl) raptors undoubtedly occupy the WSA.

MINERAL RESOURCES

The Black Mountain WSA is flanked by oil and gas fields to the northwest, northeast, and southeast which produce from Tertiary and Cretaceous formations (see Figure 3-4). The Wilson Creek Field to the northeast also produces from Jurassic and Pennsylvanian formations. The structures that trap oil in the fields around the WSA do not appear in the WSA. Even though the sediments that produce oil elsewhere are present under Black Mountain, the oil that was once probably in those rocks migrated to the traps which created the neighboring fields.

The Tertiary Green River Formation produces oil shale in the Piceance Basin south of the WSA. The richer oil shale zones of the Green River Formation are eroded from the Black Mountain area (see discussion in Chapter 1 of Impacts Oil Shale Development). Geologic structure in the WSA and vicinity is shown on Map 3-21.

PRIVATE LANDS

No private or state lands are located within the boundary of the WSA. No state lands adjoin the WSA.

WINDY GULCH WILDERNESS STUDY AREA - AFFECTED ENVIRONMEMT

MANDATORY WILDERNESS CHARACTERISTICS

Size

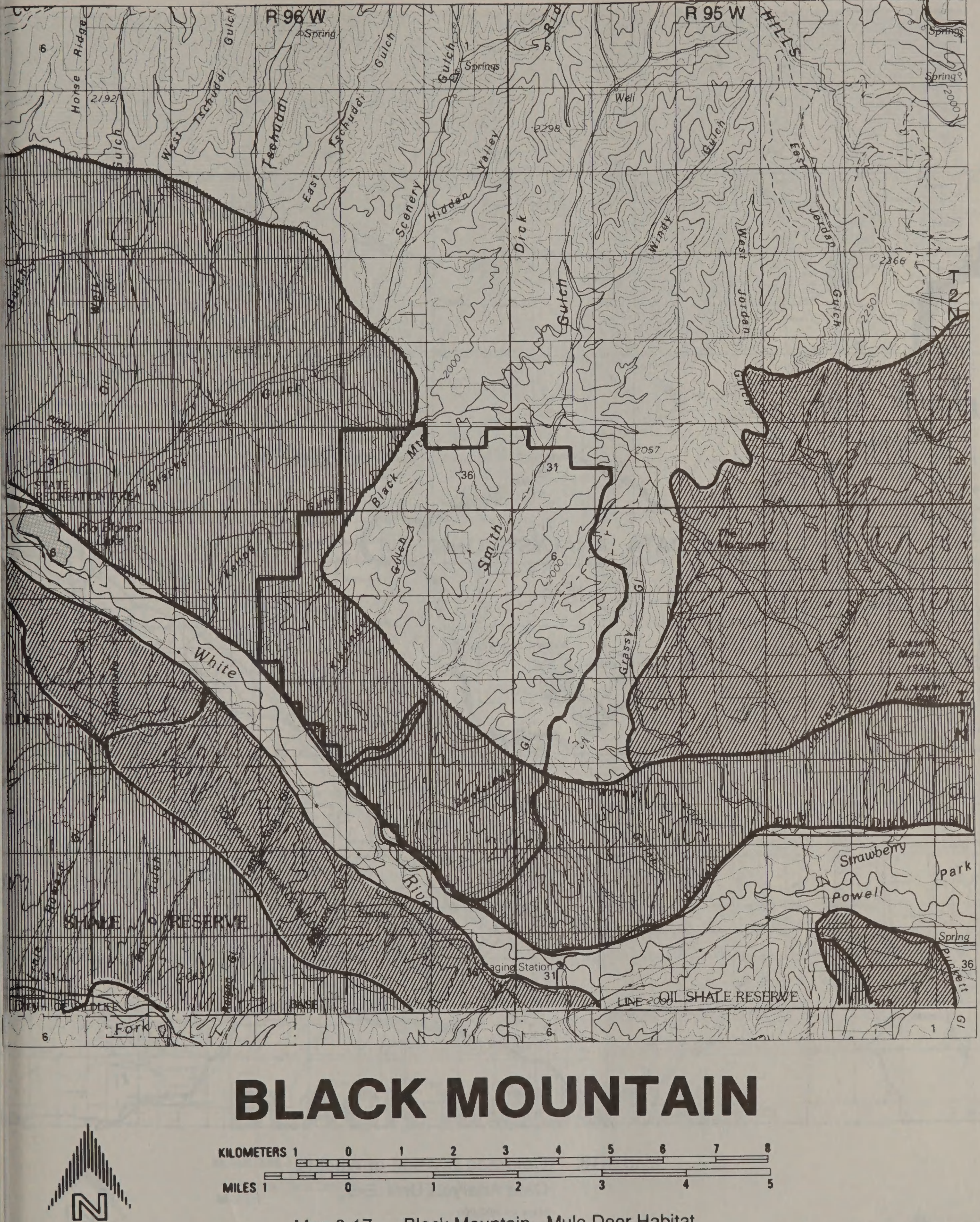
The Windy Gulch WSA contains 12,274 acres. The WSA stands as an individual area not dependent on other lands for size integrity. There is a private inholding of 320 acres near the south boundary of the WSA. No state lands adjoin the WSA.

Naturalness

The WSA generally appears to have been affected by the forces of nature with human influences being substantially unnoticeable. Windy Gulch is characterized by a series of mesas cut by several gulches and side drainages. Pinyon-juniper, sagebrush, and native grasses are the main vegetation communities. Several vehicle ways and four stock watering ponds can be found within the WSA. These imprints are substantially unnoticeable and are either screened by vegetation and topography (stock ponds) or are being overgrown by natural revegetation (vehicle ways).

Outstanding Opportunities

Outstanding opportunities for solitude are present due to ample topographic and vegetative screening. The numerous draws and dense vegetation provide visitors the opportunity to become isolated while in the area. The high ridgetops provide numerous vistas which can enhance a feeling of solitude. The large size and blocked land configuration provide ample room for individuals to be dispersed within the unit. While

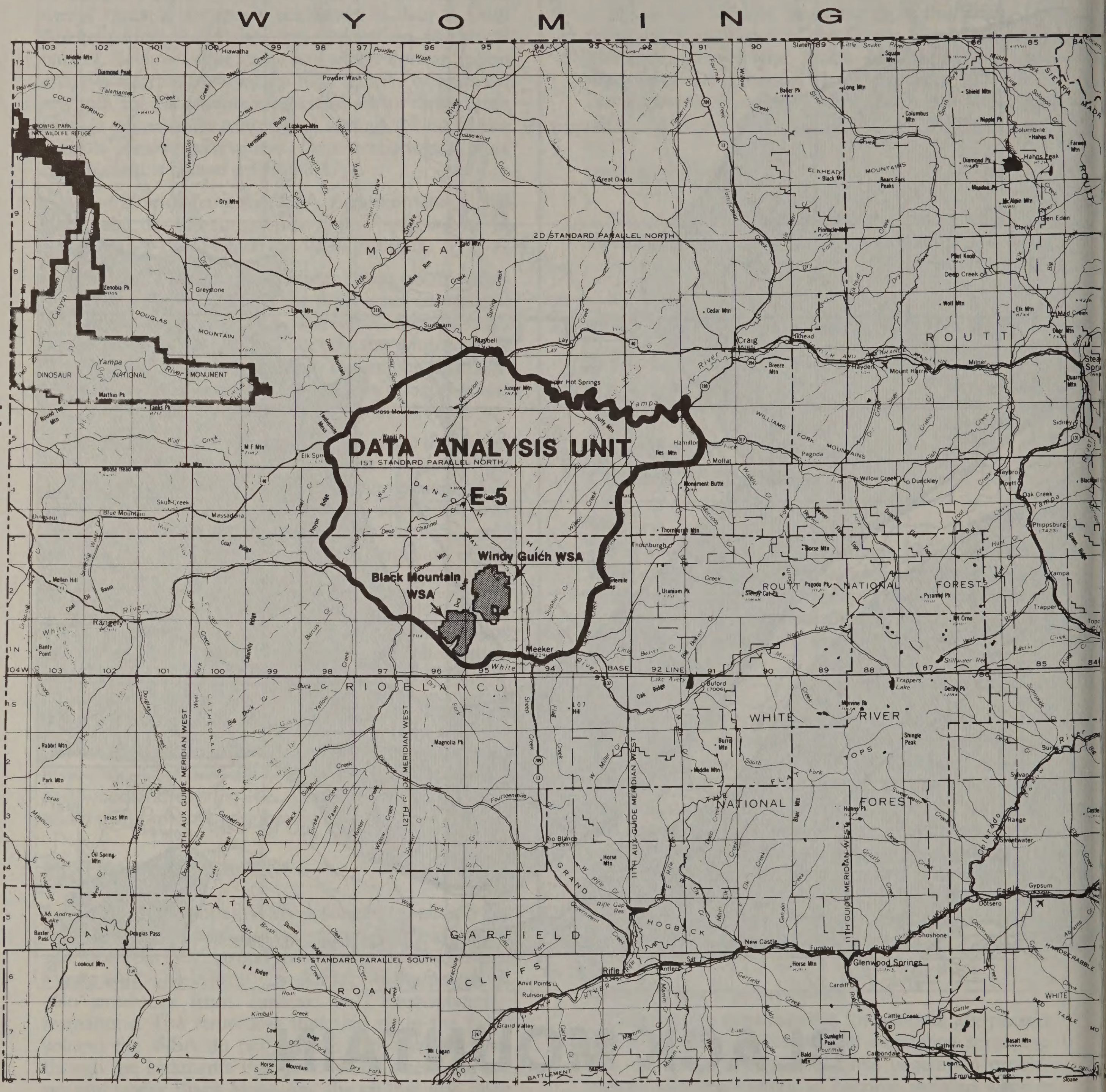


BLACK MOUNTAIN

Map 3-17. Black Mountain - Mule Deer Habitat (Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Area is Winter Range)

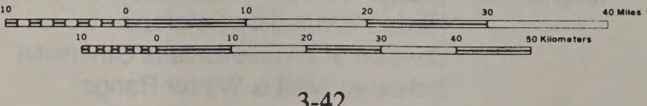
Severe Winter Range ▥

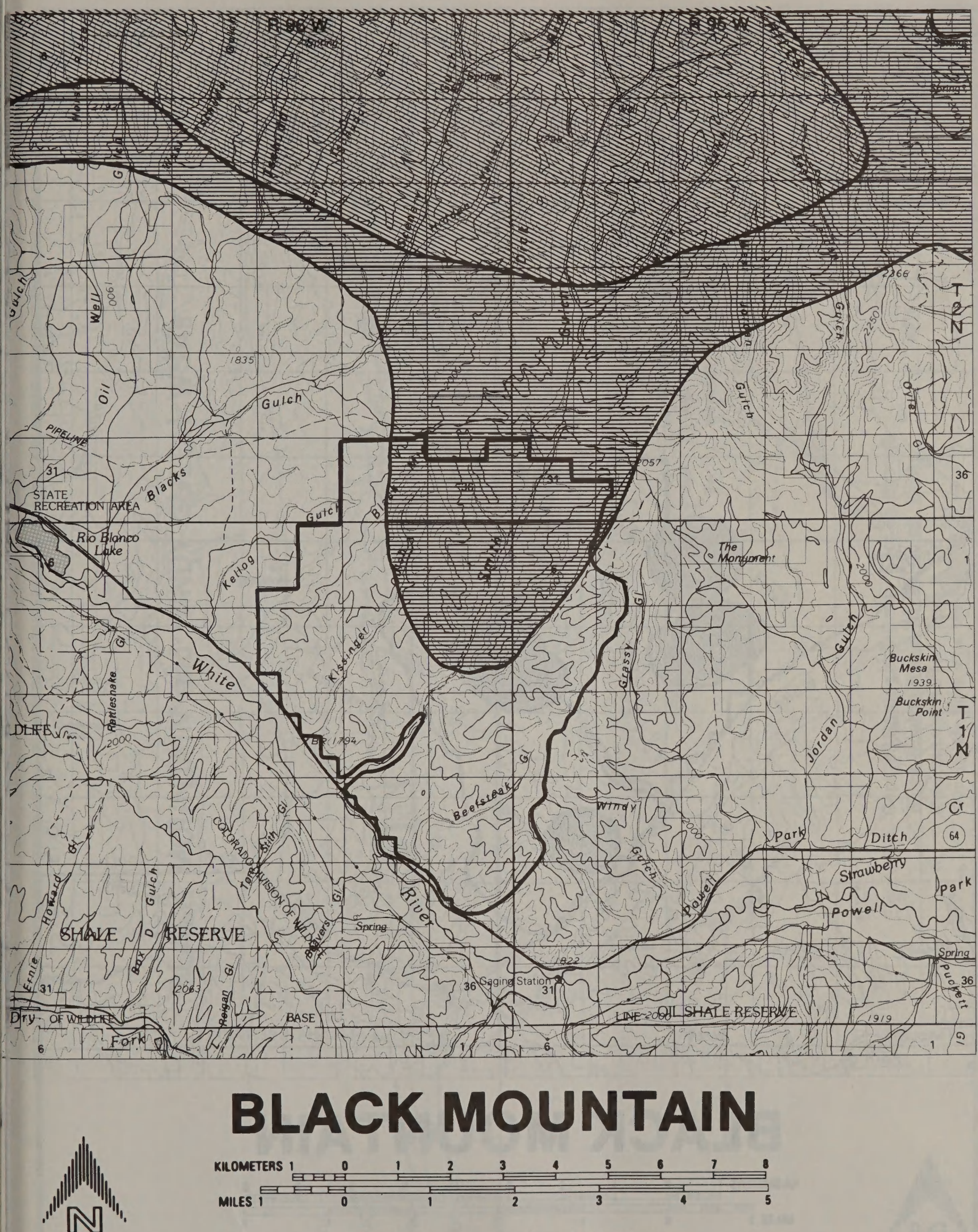
Winter Concentration Area ▨



Map 3-18. Colorado Division of Wildlife
Data Analysis Unit E-5

Scale 1:1,000,000
1 inch equals Approximately 16 miles

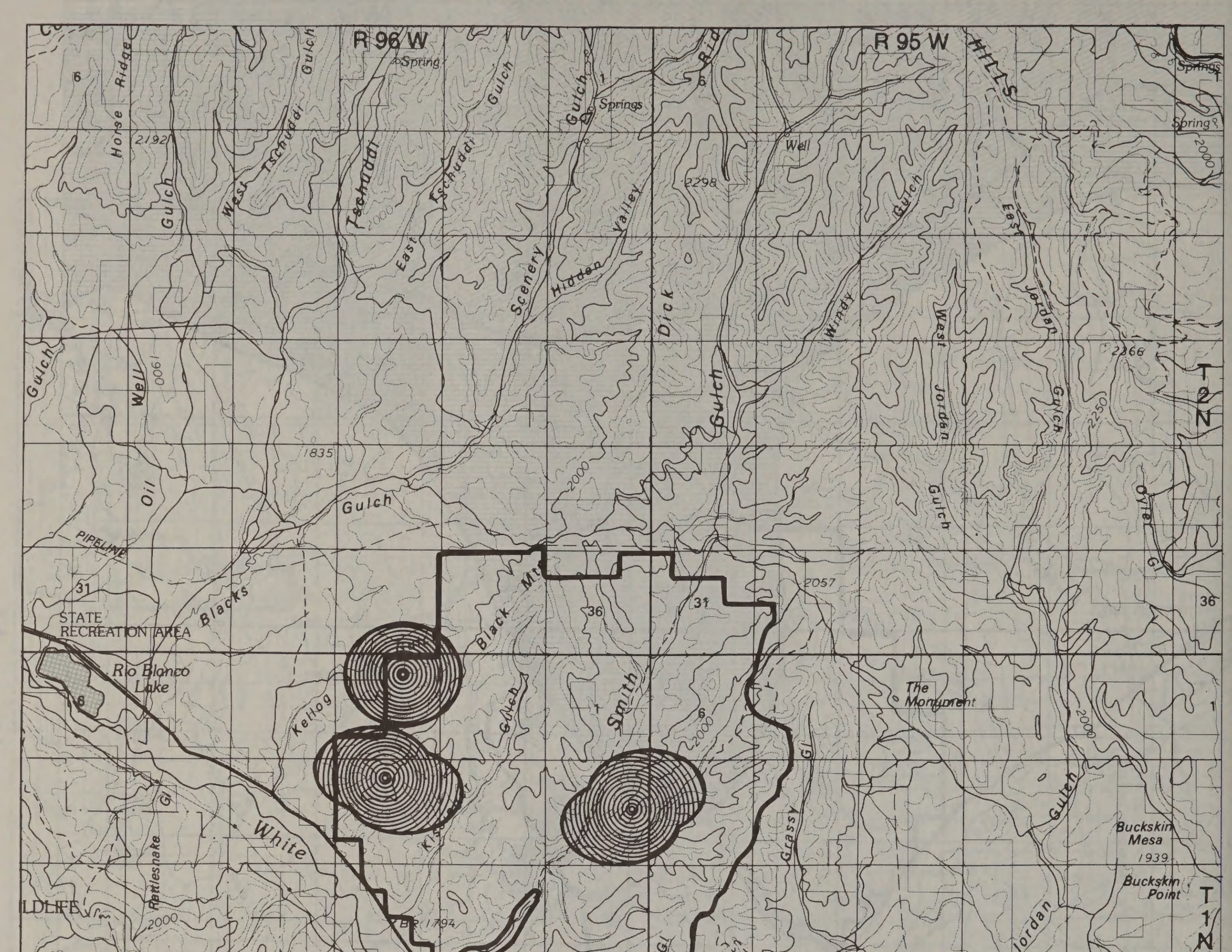




Map 3-19. Black Mountain - Elk Habitat (Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Area is Winter Range)

Winter Range ▤

Resident Population Area ▧



BLACK MOUNTAIN

Map 3-20. Black Mountain - Golden Eagle Nest Locations

Golden Eagle Nest Locations ◎

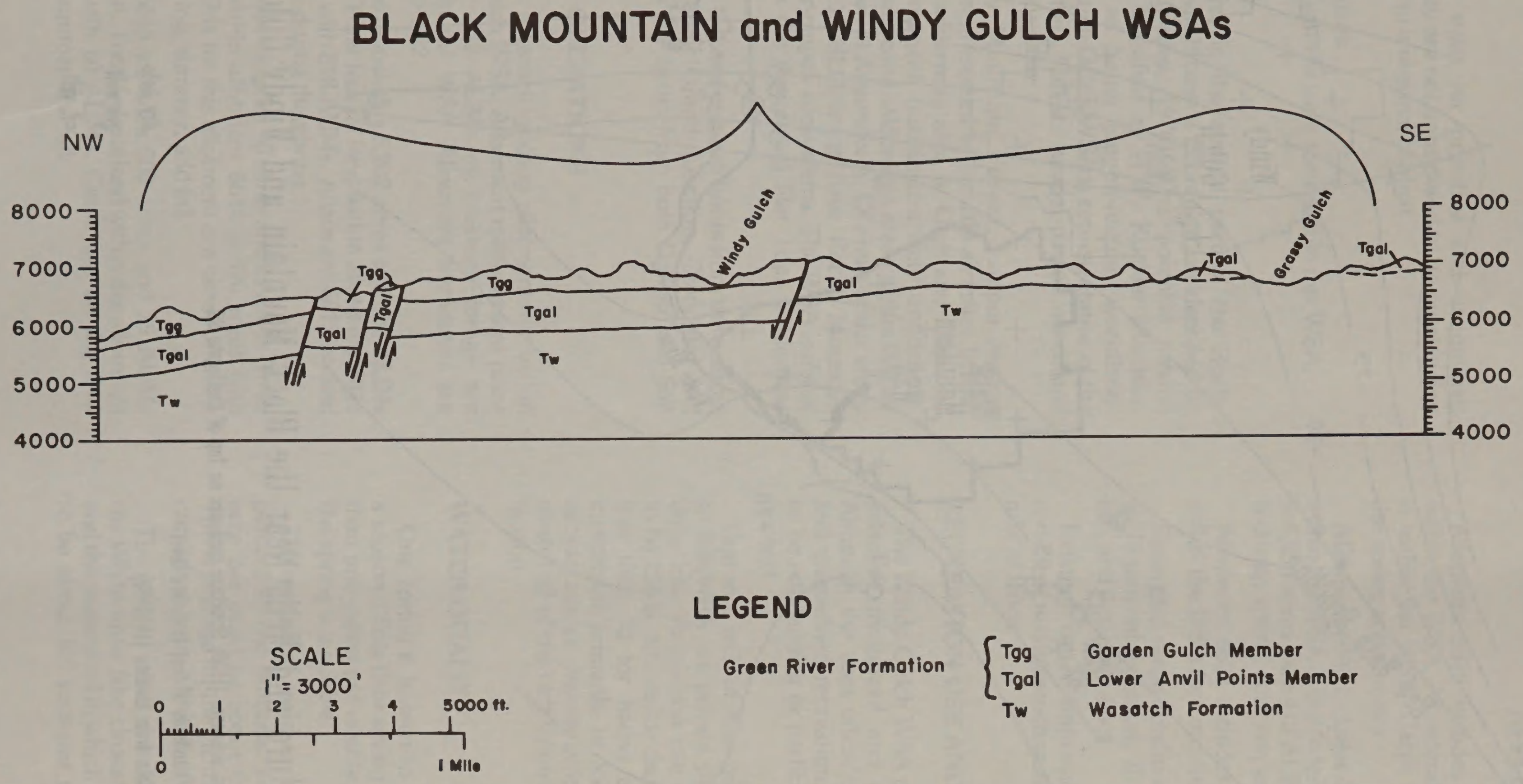
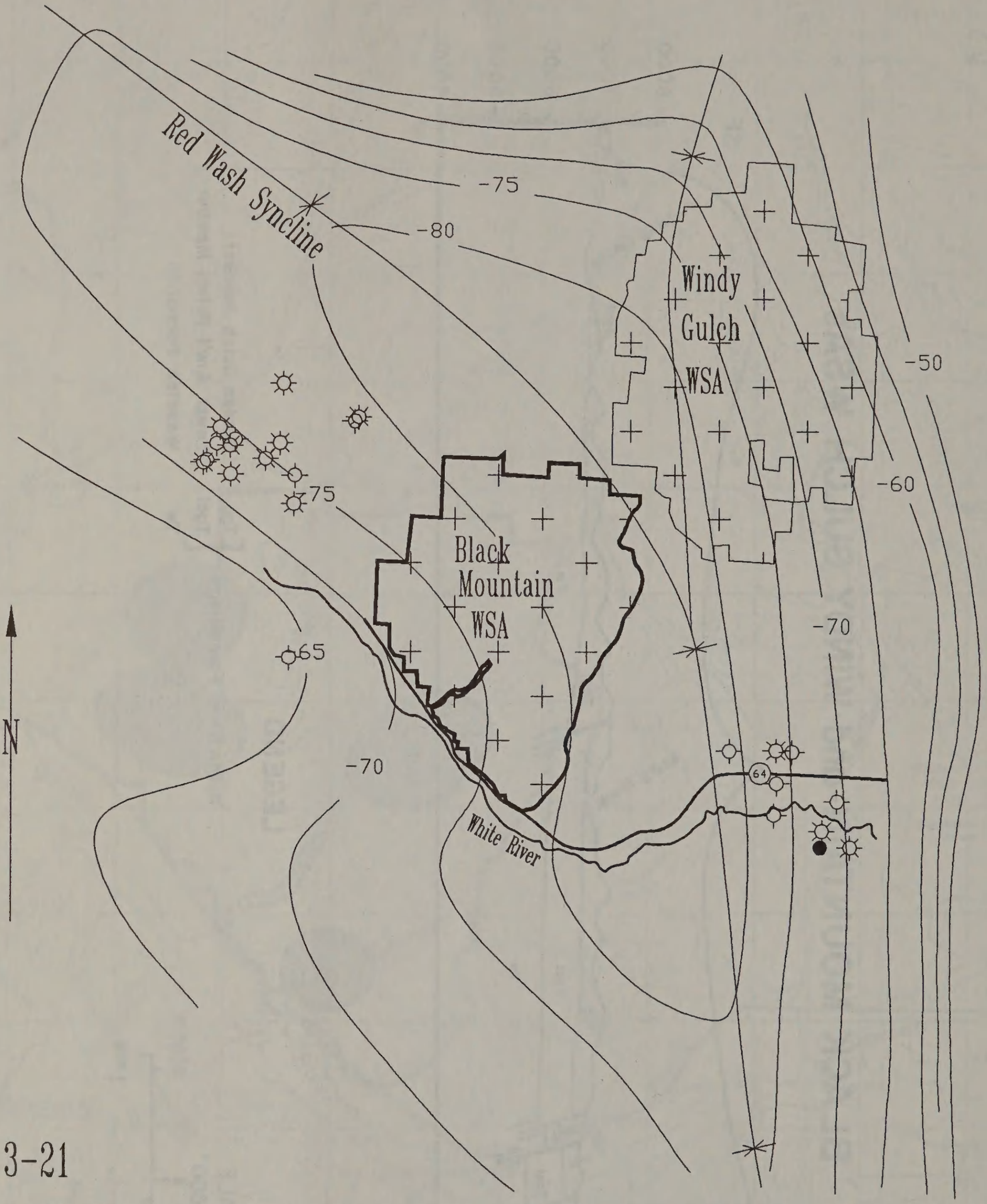


Figure 3-4. **General Geological Cross Section through Black Mountain and Windy Gulch WSAs** (From U.S.G.S. Buckskin Point 7 1/2' Quadrangle Open File Map)

Drafted by: L.Vandiver,CSO



Map 3-21

Geologic Structure and Wells Near the Black Mountain and Windy Gulch WSAs

Geology from Johnson, (1986) Structure contours on top of Castlegate SS.
contours in hundreds of feet from sea level
Drill Hole data from Hotline (1-11-89)

dry hole ⌖
gas well ☼
oil well ●

1 mile

opportunities exist for primitive and unconfined recreation, they are not considered to be outstanding or unique within a regional context.

Special Features

No special features were identified in this WSA.

Diversity

This unit lies in the central part of the Rocky Mountain Forest Province Ecoregion, as identified by R.G. Bailey (Bailey, 1976). The potential natural vegetation is identified by A.W. Kuchler (Kuchler, 1964) study as being pinyon-juniper woodland. Therefore, Windy Gulch WSA is representative of the Rocky Mountain Forest, juniper-pinyon woodland (M3110-21) ecosystem.

The Rocky Mountain Forest, juniper-pinyon ecosystem is represented within 200 air miles by the Desert Peak wilderness area in Utah and Dinosaur National Monument (administratively endorsed). Existing and proposed wilderness areas within 200 air miles are shown in Appendix A. Of areas under study in the state, 13 BLM areas have Rocky Mountain Forest, juniper-pinyon ecosystems. The WSA is about 40 miles from the designated Flat Tops Wilderness Area.

The WSA is two and one-half hours from the nearest metropolitan area (Grand Junction, Colorado) and approximately five hours from both Denver and Salt Lake City.

RANCHING OPERATIONS

Parts of six livestock grazing allotments lie within the Windy Gulch WSA. Allotment management plans estimate that 879 AUMs of livestock forage are available within the WSA. Allotment boundaries are shown on Map 3-22.

Allotment 6613 includes 6,202 acres and 384 AUMs on the WSA. Total federal land within allotment 6613 is 8,570 acres with 898 AUMs. Allotment 6613 is used to graze cattle during the spring.

Allotment 6614 includes 40 acres and 2 AUMs. Total federal land within allotment 6614 is 390 acres with 60 AUMs. AUMs for this allotment are used for cattle during the spring, summer, and fall.

Allotment 6615 includes 500 acres and 29 AUMs within the WSA. Total federal land within this allotment is 900 acres with 60 AUMs. Cattle use on the area is during the summer and fall.

Allotment 6619 includes 620 acres and 63 AUMs within the WSA. All federal land within the allotment is within the WSA. Cattle use on the area is during the spring and summer.

Allotment 6620 includes 4,892 acres and 400 AUMs within the WSA. Total federal land within the allotment is 6,350 acres with 413 AUMs. Cattle use on the area is during spring, summer, and fall.

Allotment 6623 includes 20 acres and one AUM within the WSA for summer and fall cattle use.

Ecological range condition in the WSA is estimated to 75 percent excellent, 10 percent good, 10 percent fair, and 5 percent poor.

Existing range improvements within the WSA consist of two livestock watering ponds and one-fourth mile of fence.

RECREATION USE AND QUALITY

The Windy Gulch WSA provides a setting for semi-primitive motorized and nonmotorized recreation. Although the area offers opportunities for primitive and unconfined recreation, they are not considered to be outstanding or particularly unique in a regional context.

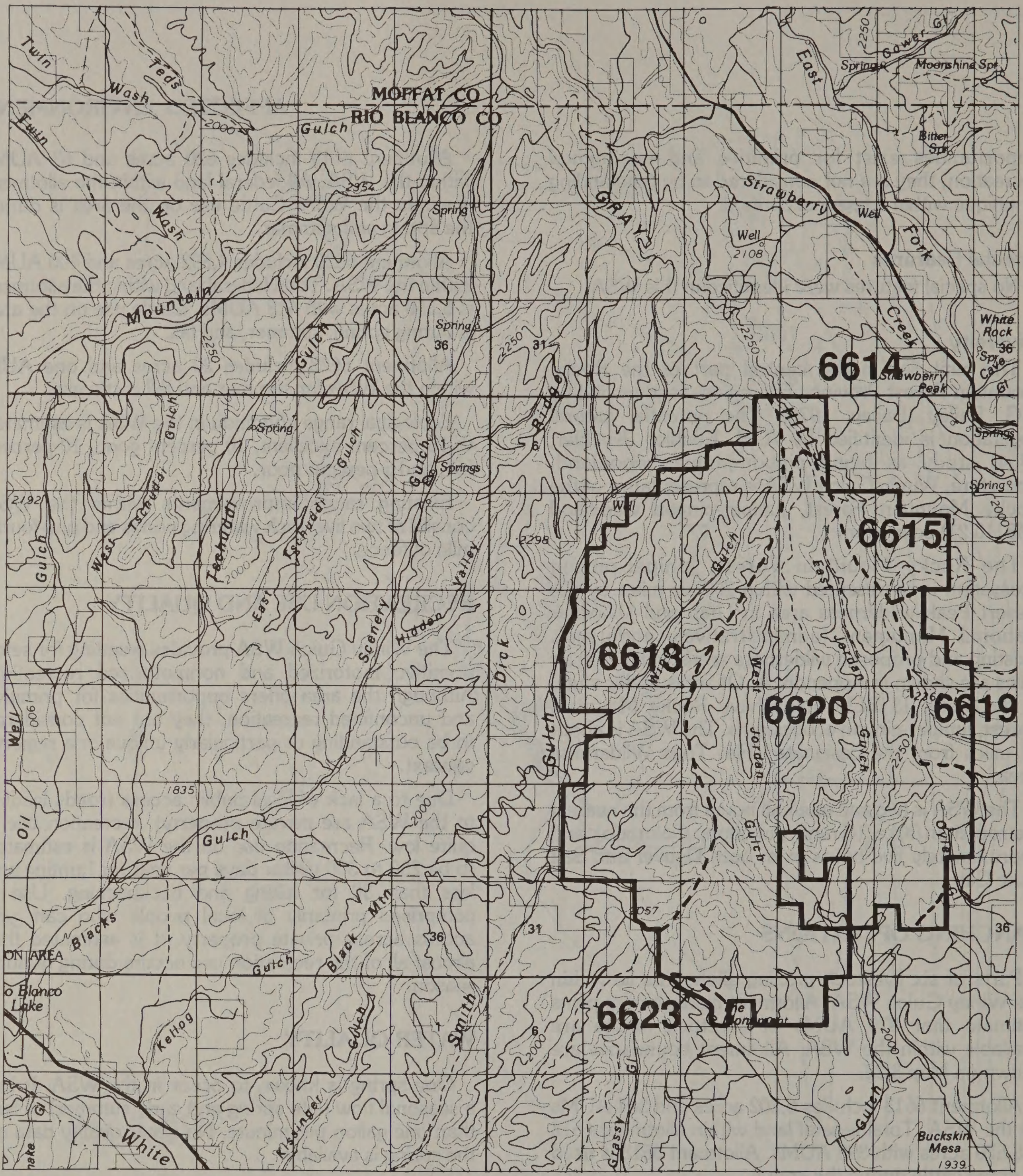
Due to a lack of legal public access (roads leading to the WSA are private property), recreation use is quite low. Recreation use on the WSA is estimated to be 250 to 300 visitor days per year for hunting and less than 30 for hiking and backpacking. Use is comprised primarily of local people who can gain access across private property. It is estimated that almost all of the recreation use occurs during hunting season.

WATER QUALITY

One spring is known to occur in the WSA. It has a seasonal flow (late spring and early summer) of less than one gallon per minute. No water quality data on the spring is available.

The sediment yield is estimated to be about 20 percent of the potential erosion rate (0.95 tons per acre per year) or about 0.2 ton per acre per year. This is average for the vicinity and no special or unique conditions exist within the WSA.

The salinity (total dissolved solids) contribution to the White River (the closest perennial stream or river, and the watershed in which the WSA lies) is estimated to be about 100 tons per year from the WSA. Both



WINDY GULCH

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

Map 3-22. Windy Gulch - Allotment Boundaries

Grazing Allotments **6613**

sediment yield and salt contributions may vary up to 25 percent from year to year depending on intensity and duration of precipitation.

BIG GAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Mule deer and elk, the important big game wildlife species, and golden eagles, a species of concern, inhabit the Windy Gulch WSA. The following discussion is based on data provided by the Colorado Division of Wildlife (CDOW, 1987). The seasons of use for deer and elk are approximate and indicate when the majority of use is anticipated to occur. While an area might be identified as deer winter range, some deer would probably be found in the WSA during the summer and fall.

About 350 deer inhabit the 12,274 acre Windy Gulch WSA during the winter months. Approximately 73,290 deer inhabit the 4,082 square miles within Colorado Division of Wildlife's (DOW) Data Analysis Unit D-7 (see Map 3-16) of which the WSA is a part. The CDOW has identified 10,374 acres of WSA as deer winter range and 1,900 acres as severe winter range and a winter concentration area. Deer occupy these ranges from the first of December and migrate to higher elevation by the end of April. Winter range is used by deer in an average winter and spring, severe winter range is an area where deer congregate during an extremely harsh winter, and a winter concentration area is a wintering area with a high density of animals. The WSA comprises 0.8 percent of the winter range (0.5 percent of the severe winter range and 1.9 percent of the winter concentration area) in CDOW's Data Analysis Unit D-7. Because severe winter range is extremely important to deer in Data Analysis Unit D-7, it has been identified as critical habitat. Mule deer habitat is shown on Map 3-23.

About 40 elk inhabit the WSA. Approximately 2,490 elk inhabit the 851 square mile Data Analysis Unit E-5 of which the WSA is a part (see Map 3-18). About 7,860 acres of elk winter range and 4,700 acres of a resident population area (area with distinct populations where animals could be found in any part of the area at any time of the year) occur within the WSA. Elk occupy the winter range most heavily from the middle of December, although some use occurs as early as the middle of September. They migrate to higher elevations by the end of April. The WSA comprises about 2.4 percent of the winter range within Data Analysis Unit E-5, as shown on Map 3-24. None of the WSA is within a winter concentration area, severe winter range, or within critical habitat.

Five golden eagle nests are known to occur in the WSA. The five nest sites appear to comprise four nesting territories. Up to four pair of eagles may simultaneously use the WSA. The locations are shown on Map 3-25. Up to 15 pairs of golden eagles may nest within 5 miles of the Windy Gulch WSA. The WSA has not received a thorough raptor inventory. Additional cliff nesting (i.e., red-tailed hawk) and woodland nesting (i.e., Coopers hawk and long- eared owl) raptors undoubtedly occupy the WSA.

MINERAL RESOURCES

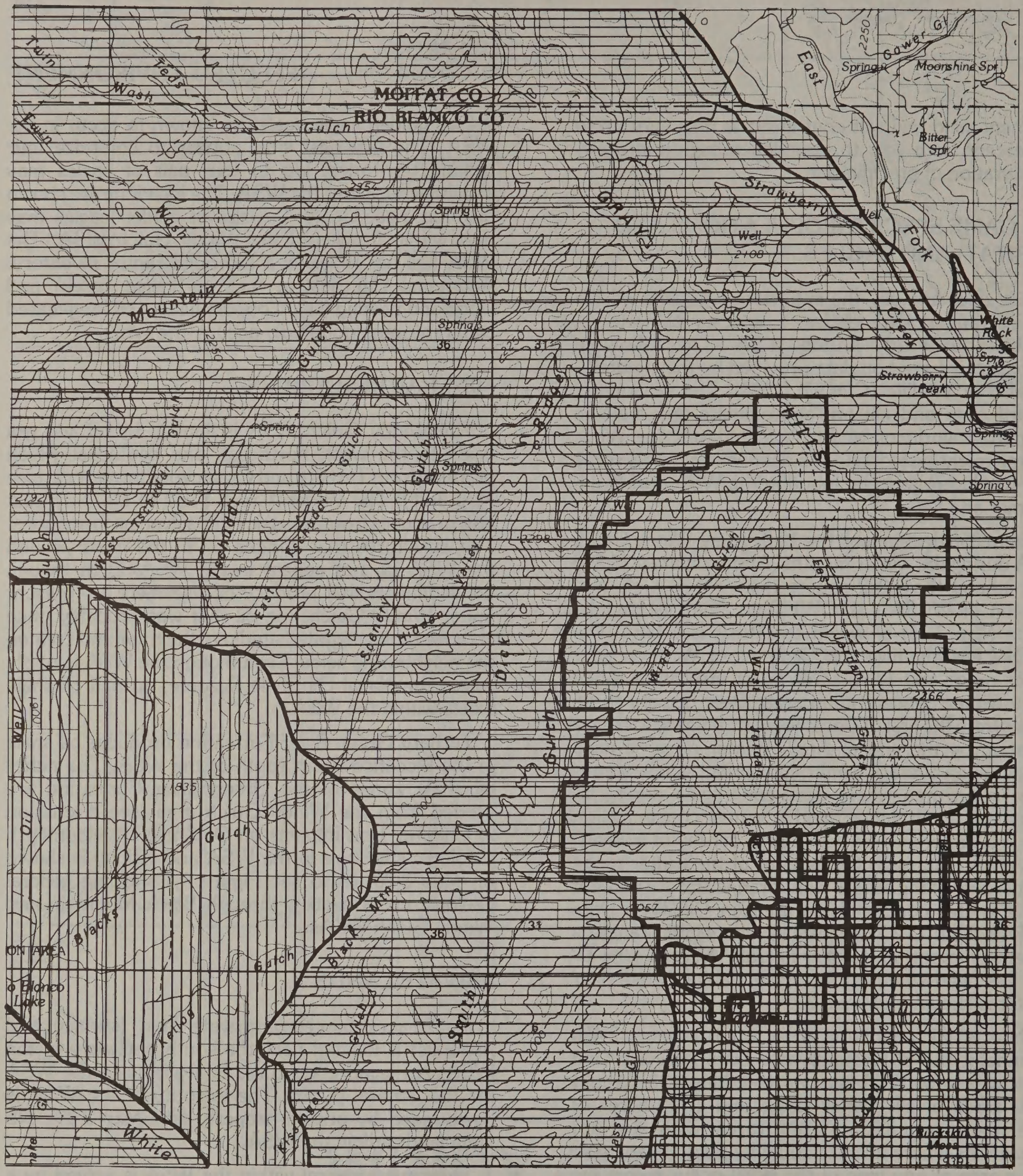
The Windy Gulch WSA is flanked by oil and gas fields to the west, northeast, and southeast which produce from Tertiary and Cretaceous formations (see Map 3-26). The Wilson Creek Field to the northeast also produces from Jurassic Pennsylvanian formations. The structures that contain oil in the fields around the WSA do not appear in the WSA. Even though the sediments that produce oil elsewhere are present under Windy Gulch, the oil that was probably once in those rocks migrated up-dip to the traps and created the neighboring fields. Even though the WSA is partly within the Naval Oil Shale Reserve, no rich oil shale exists within the WSA.

Tertiary Green River Formation produces oil shale in the Piceance Basin south of the WSA. The richer oil shale zones of the Green River Formation are eroded from the Windy Gulch area (see discussion in Chapter 1 on Impacts on Oil Shale Development). Geologic structure in the WSA and vicinity is shown on Map 3-26. (Also see Figure 3-4 showing general geologic cross section through Black Mountain and Windy Gulch WSAs.)

PRIVATE LANDS

A 320-acre parcel of private land (surface and minerals) is located near the south boundary of the WSA. No legal road access is available to the WSA for the general public. The majority of the WSA is surrounded by private property (see Map 2-29). No state lands adjoin the WSA.

The private parcel within the WSA is served by a maintained road and contains buildings and other noticeable imprints of man. Cursory examination of the area shows the area to be unsuitable for inclusion as wilderness.



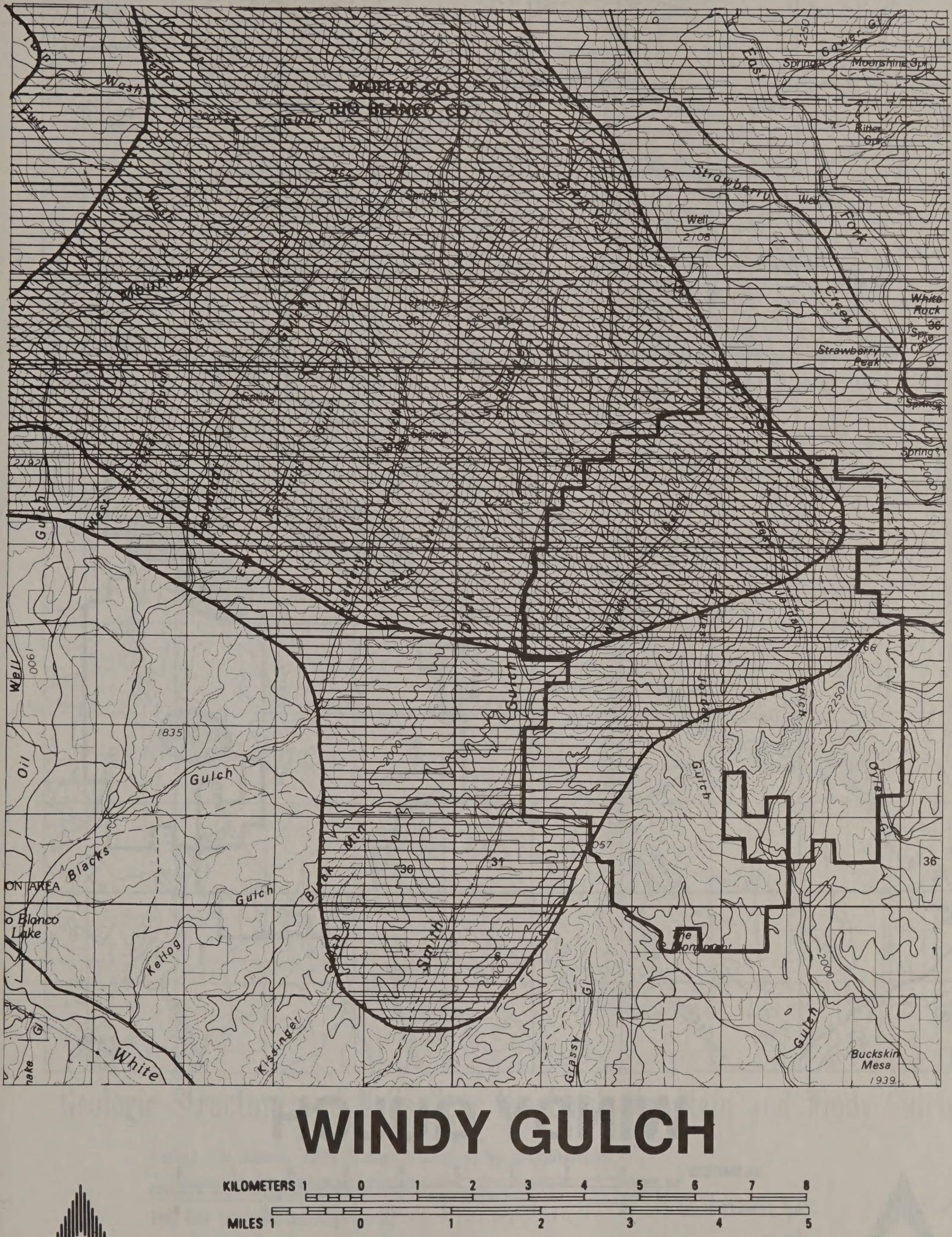
WINDY GULCH

Map 3-23. Windy Gulch - Mule Deer Habitat(Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Area is Summer Range)

Winter Range ▤

Severe Winter Range ▥

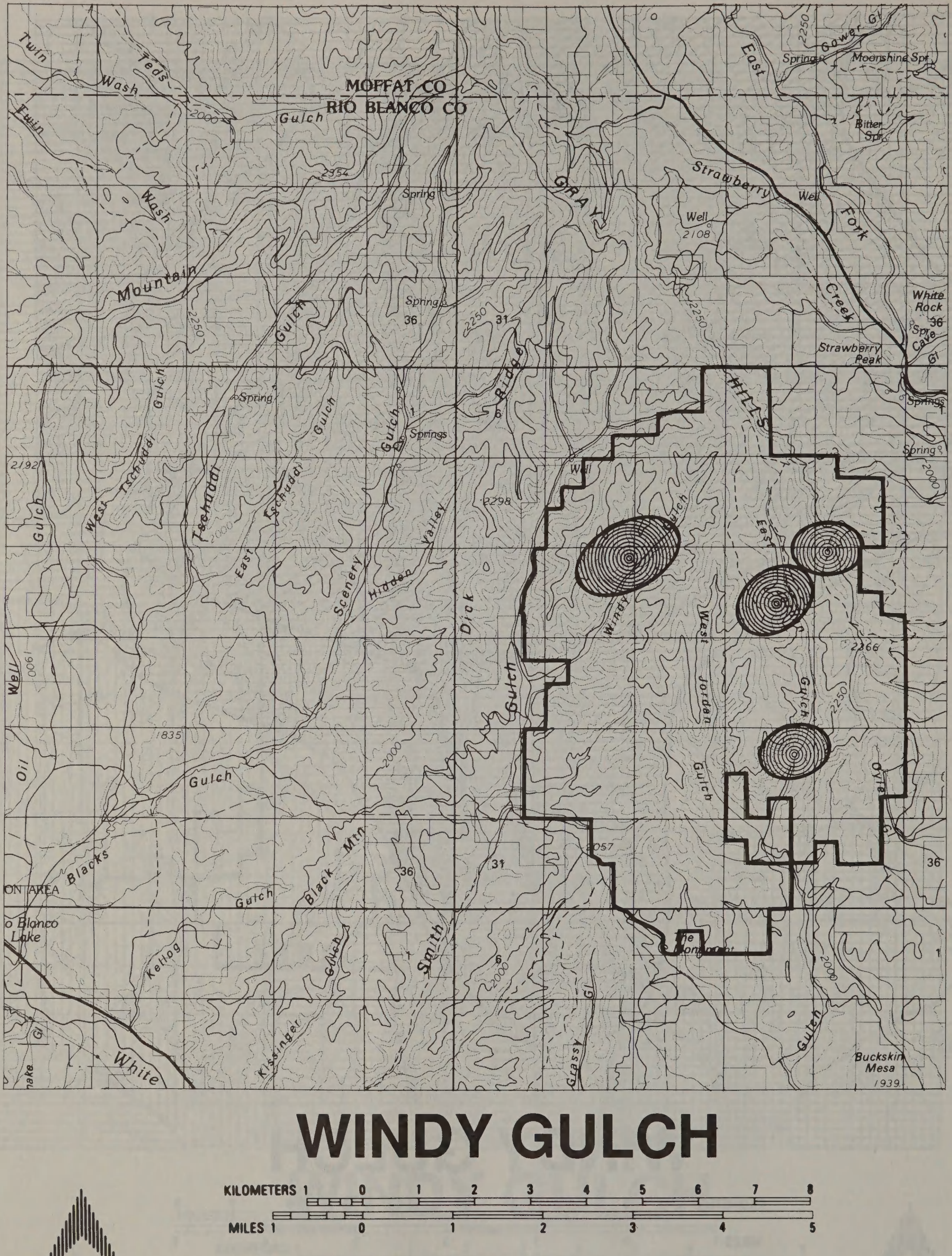
Winter Concentration Area ▦



Map 3-24. Windy Gulch - Elk habitat(Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Area not Elk Habitat)

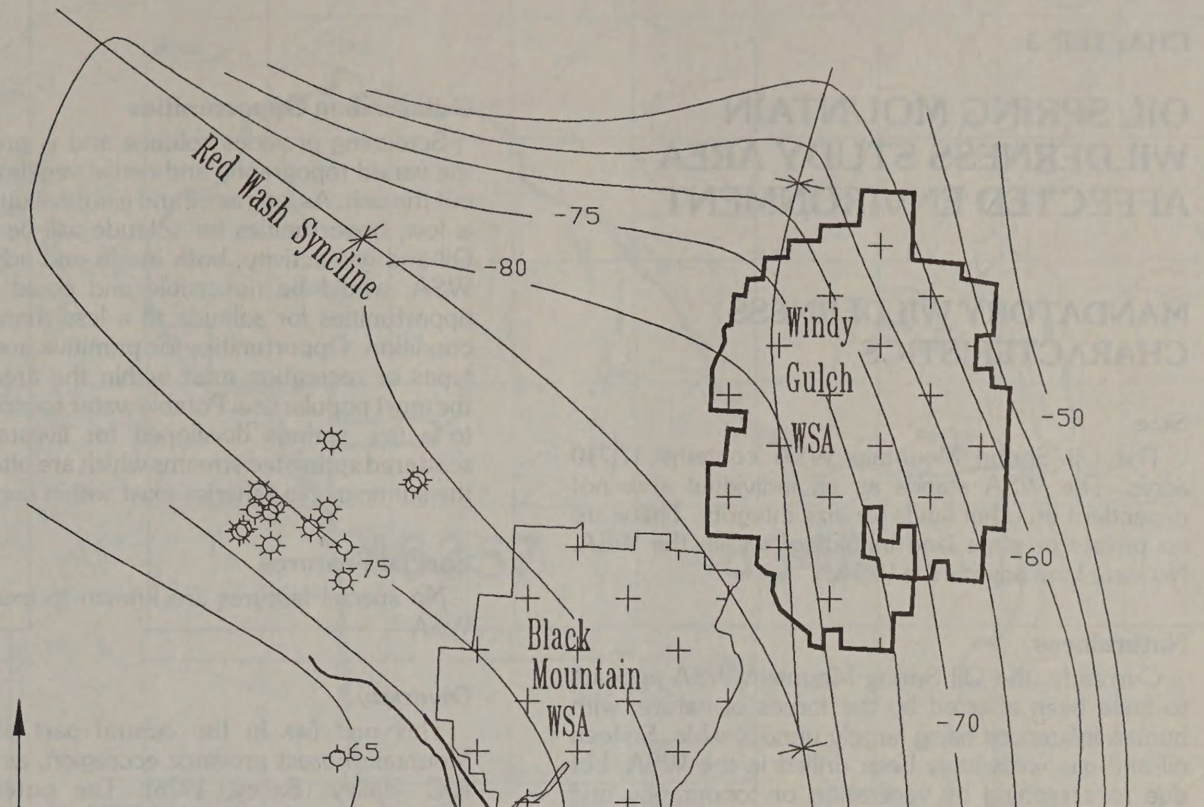
Winter Range ▤

Resident Population Area ▨



Map 3-25. Windy Gulch - Golden Eagle Nest Location

Golden Eagle Nests ◎



Map 3-26

Geologic Structure and Wells Near the Black Mountain and Windy Gulch WSAs

Geology from Johnson, (1986) Structure contours on top of Castlegate SS.

contours in hundreds of feet from sea level

Drill Hole data from Hotline (1-11-89)

dry hole	⌖
gas well	☼
oil well	●

1 mile

OIL SPRING MOUNTAIN WILDERNESS STUDY AREA - AFFECTED ENVIRONMENT

MANDATORY WILDERNESS CHARACTERISTICS

Size

The Oil Spring Mountain WSA contains 17,740 acres. The WSA stands as an individual area not dependent on other lands for size integrity. There are no private or state land inholdings within the WSA. No state land adjoins the WSA.

Naturalness

Currently, the Oil Spring Mountain WSA appears to have been affected by the forces of nature, with human influences being largely unnoticeable. Sixteen oil and gas wells have been drilled in the WSA, but due to screening by vegetation or topography and rehabilitation work, they are substantially unnoticeable within the WSA as a whole.

The area is dominated by flat-topped Oil Spring Mountain and its associated ridges and drainages. The mountain provides superior views of the surrounding landscape, including the High Uintas in Utah and Cathedral Bluffs to the east. Diverse vegetation appears throughout the WSA ranging from sagebrush-saltbush and pinyon-juniper communities at lower elevations to mountain mahogany-oak scrub to Douglas-fir forest on top of Oil Spring Mountain.

Approximately one third of the WSA is covered by pre-FLPMA leases which are held by production outside of the WSA. Since pre-FLPMA leases convey a right of development, it is possible that up to one-third of the WSA could be developed even with wilderness designation.

Existing range improvements, consisting of five improved springs and seven earthen stock ponds, are screened by vegetation and topography and are substantially unnoticeable within the unit.

Outside sights and sounds are noticeable near the boundaries of the WSA due to vehicle traffic and the presence of oil and gas development activities nearby.

Outstanding Opportunities

Screening provides solitude and is present due to the varied topography and dense vegetation throughout the unit. As long as oil and gas development activity is low, opportunities for solitude will be outstanding. Oil and gas activity, both inside and adjacent to the WSA, would be noticeable and could degrade the opportunities for solitude to a less than outstanding condition. Opportunities for primitive and unconfined types of recreation exist within the area; hunting is the most popular use. Potable water sources are limited to a few springs developed for livestock use and scattered spring-fed streams which are often dry during the summer. No fisheries exist within the WSA.

Special Features

No special features are known to exist within the WSA.

Diversity

This unit lies in the central part of the Rocky Mountain Forest province ecoregion, as identified by R.C. Bailey (Bailey, 1976). The potential natural vegetation is identified by A.W. Kuchler (Kuchler, 1964) as being mountain mahogany oak scrub. The Oil Springs Mountain WSA is, therefore, representative of the Rocky Mountain Forest, mountain mahogany oak scrub (M3110-31) ecosystem.

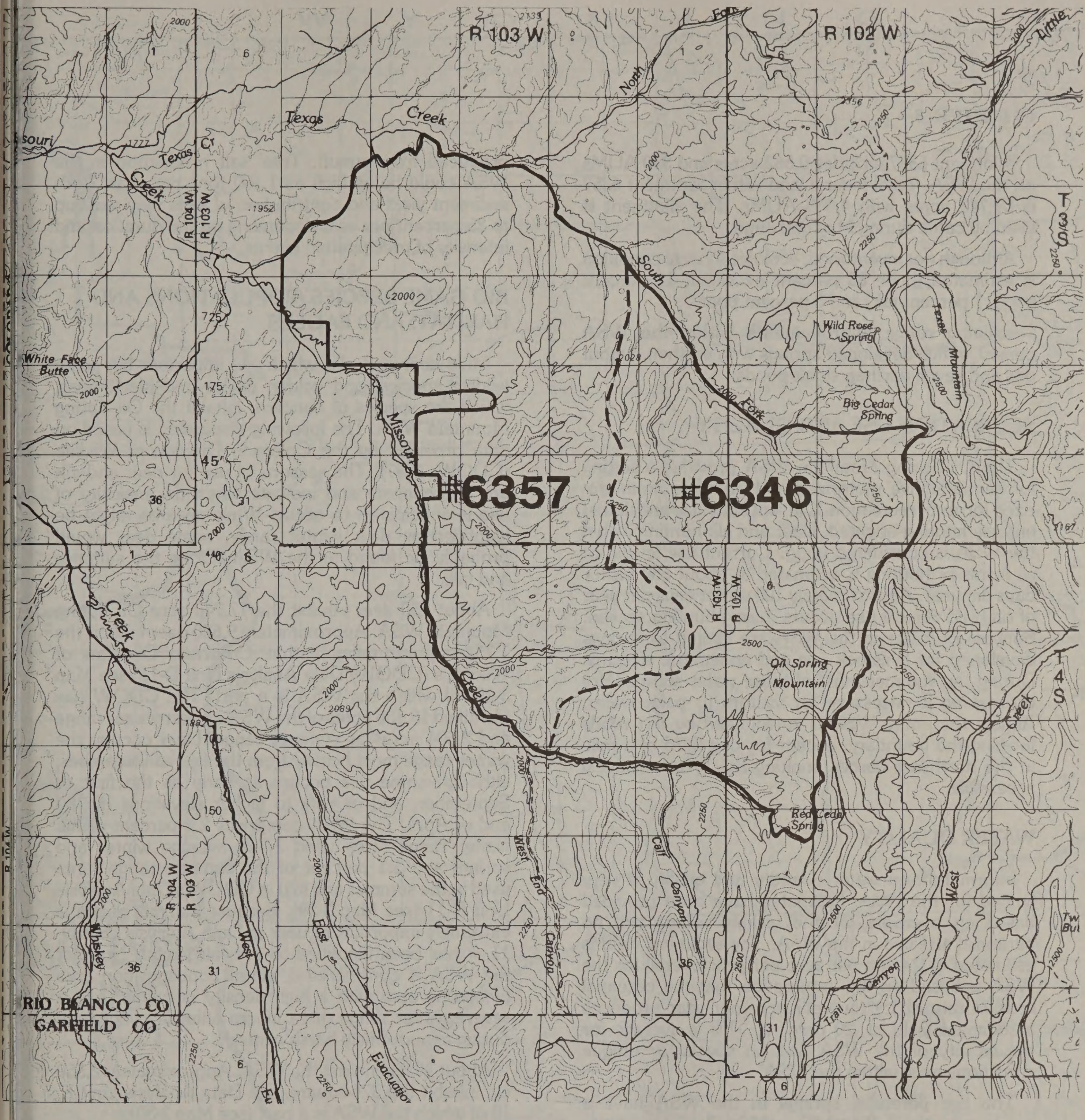
The Rocky Mountain Forest, mountain mahogany oak scrub ecosystem is represented within 200 air miles by 7 wilderness areas in Utah. Three other wilderness study areas representative of this ecosystem are also located within 200 air miles of the Oil Spring Mountain WSA and are shown in Appendix A.

The WSA is two and one-half hours from the closest metropolitan area (Grand Junction, Colorado) and approximately five hours from both Denver and Salt Lake City.

RANCHING OPERATIONS

Portions of two livestock grazing allotments lie within the Oil Spring Mountain WSA. Allotment management plans estimate that 780 AUMs are available within the WSA. Allotment boundaries are shown on Map 3-27.

Allotment 6346 includes 8,008 acres and 450 AUMs on the WSA. Total federal land within allotment 6346 is 134,602 acres with 11,371 AUMs. The allotment is used by cattle from October to May.



OIL SPRING MOUNTAIN

Map 3-27. Oil Spring Mountain - Allotment Boundaries

Grazing Allotments **6613**

Allotment 6357 includes 9,562 acres and 330 AUMs on the WSA. Total federal land within allotment 6357 is 59,743 acres with 4,059 AUMs. The allotment is used by cattle during May and June.

Although not inventoried, ecological range condition is estimated to be 85 percent excellent, 11 percent good, 1 percent fair, and 3 percent poor.

Existing range improvements within the WSA consist of five developed springs with earthen dugout pits and seven earthen stock ponds.

RECREATION USE AND QUALITY

The Oil Spring Mountain WSA provides a setting for semiprimitive motorized and primitive nonmotorized forms of recreation. Current activities are almost entirely hunting oriented. Deer and elk hunting within the WSA is considered good. Current use levels for all forms of hunting is estimated at about 550 visitor days per year. Approximately 100 visitor days per year of off-road vehicle use occurs during hunting season. Sources of water in the WSA are limited to springs developed for livestock use and ephemeral streams. During the summer most of these water sources dry up making it necessary for visitors to pack water. Almost the entire WSA is surrounded by dirt roads forming the boundary, except for one-third of a mile in the northeast corner, making the WSA relatively accessible.

WATER QUALITY

Information on water quantity and quality is very limited for the WSA. Estimates have been provided based on averages for the vicinity. There are no perennial streams in the WSA. The sediment yield is estimated at 0.4 ton per acre per year overall for the WSA is based on the assumption that the potential erosion rate of 1.9 tons per acre per year produces a sediment yield of .20 percent. This is average for the vicinity of the WSA and no special or unique conditions exist within the WSA.

The five perennial springs in the WSA have a combined estimated peak flow of 50 gallons per minute and an average total dissolved solid content of 5,044 mg/l. The eight seasonal springs or seeps in the WSA have a combined estimated flow of 4.2 gallons per minute. They have an average total dissolved solid content of 5.605 mg/l.

Up to 567 tons of salts (total dissolved solids) per year may be produced by the springs in the WSAs. In addition up to 650 tons per year are probably produced from runoff. Total salt production in the WSA could be as high as 1,100 tons per year. Both sediment yield and contribution of salts may vary up to 25 percent per year depending on the duration and intensity of precipitation events.

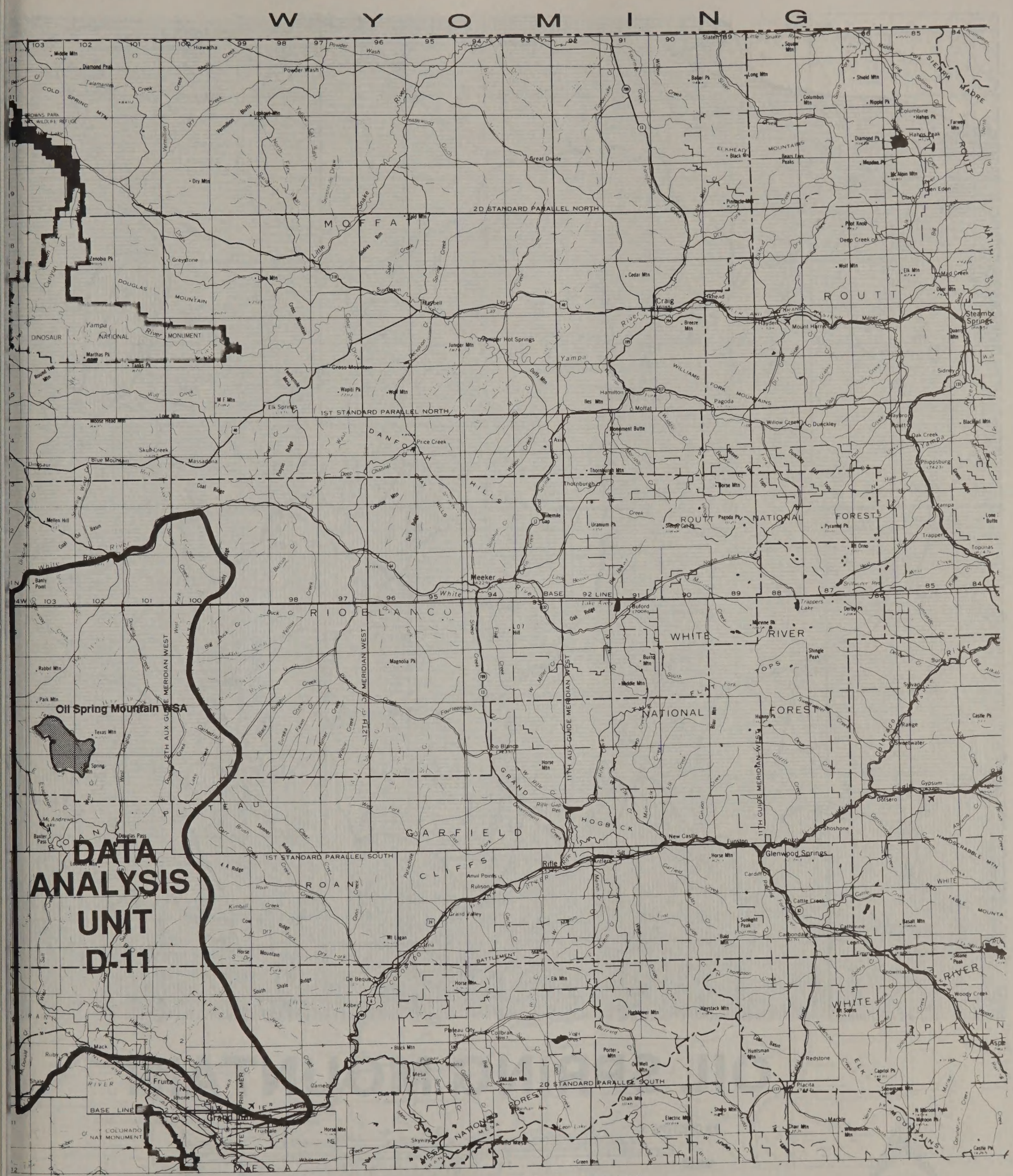
BIG GAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Mule deer and elk, which are important big game wildlife species, and golden eagles and black bear, which are species of concern, inhabit the Oil Spring Mountain WSA. The following discussion is based on data provided by the Colorado Division of Wildlife (CDOW, 1987). The seasons of use for deer and elk are approximate and indicate when the majority of use is anticipated to occur. While an area might be identified as deer winter range, some deer would probably be found in the WSA during the summer and fall.

About 150 deer inhabit the 17,740 acre Oil Spring Mountain WSA. Approximately 9,620 deer inhabit the 1,754 square miles within Colorado Division of Wildlife's (CDOW) Data Analysis Unit D-11 (see Map 3-28) of which the WSA is a part. The CDOW has identified 15,136 acres of the WSA as deer winter range and 2,604 acres as summer range. Deer occupy the winter range most heavily from the first of December, although some use occurs as early as the first of September, and migrate to higher elevations by the end of April. The WSA comprises 2.4 percent of the winter range (area used in an average winter and spring) and 1.1 percent of the summer range (area used in the summer and fall) in CDOW's Data Analysis Unit D-11 (see Map 3-29). Because summer range is extremely important to deer in Data Analysis Unit D-11, it has been identified as critical habitat. None of the WSA is considered a winter concentration area (wintering area with a high density of animals) or a severe winter range (area where animals congregate during an extremely harsh winter).

About 19 elk inhabit the WSA. Approximately 2,550 elk inhabit the 374-square-mile Data Analysis Unit E-10 of which the WSA is a part (see Map 3-30).

About 11,650 acres of elk severe winter range and 3,090 acres of area not considered to be elk range occur within the WSA. Elk occupy the severe winter range from the first of December through the middle of April. The WSA comprises about 5.3 percent of the severe winter range for elk in Data Analysis Unit E-10 as shown on Map 3-31. None of the WSA is within a winter concentration area or critical habitat for elk.

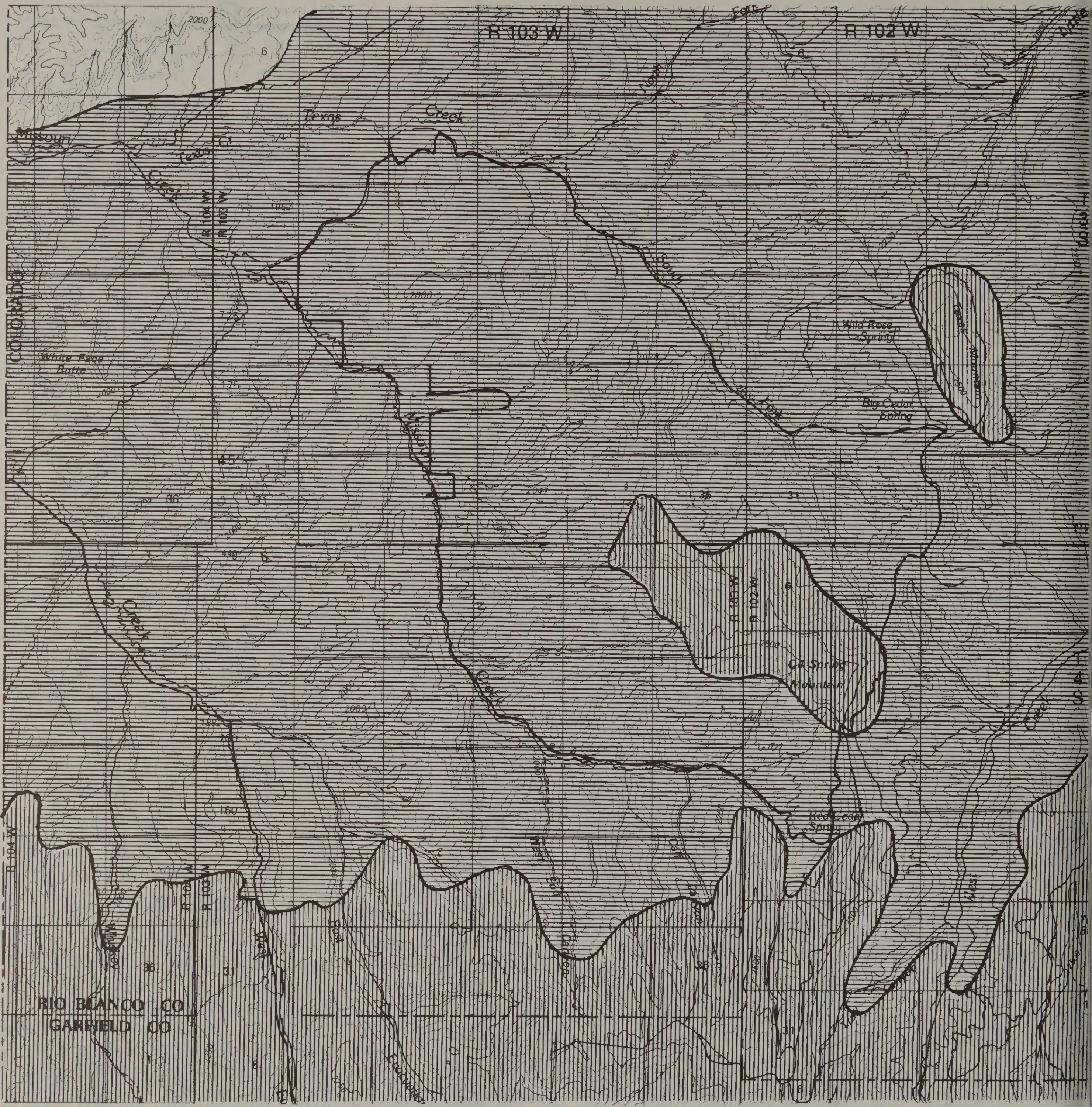


Map 3-28 Colorado Division of Wildlife
Data Analysis Unit D-11

Scale 1:1,000,000
1 inch equals Approximately 16 miles

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometers

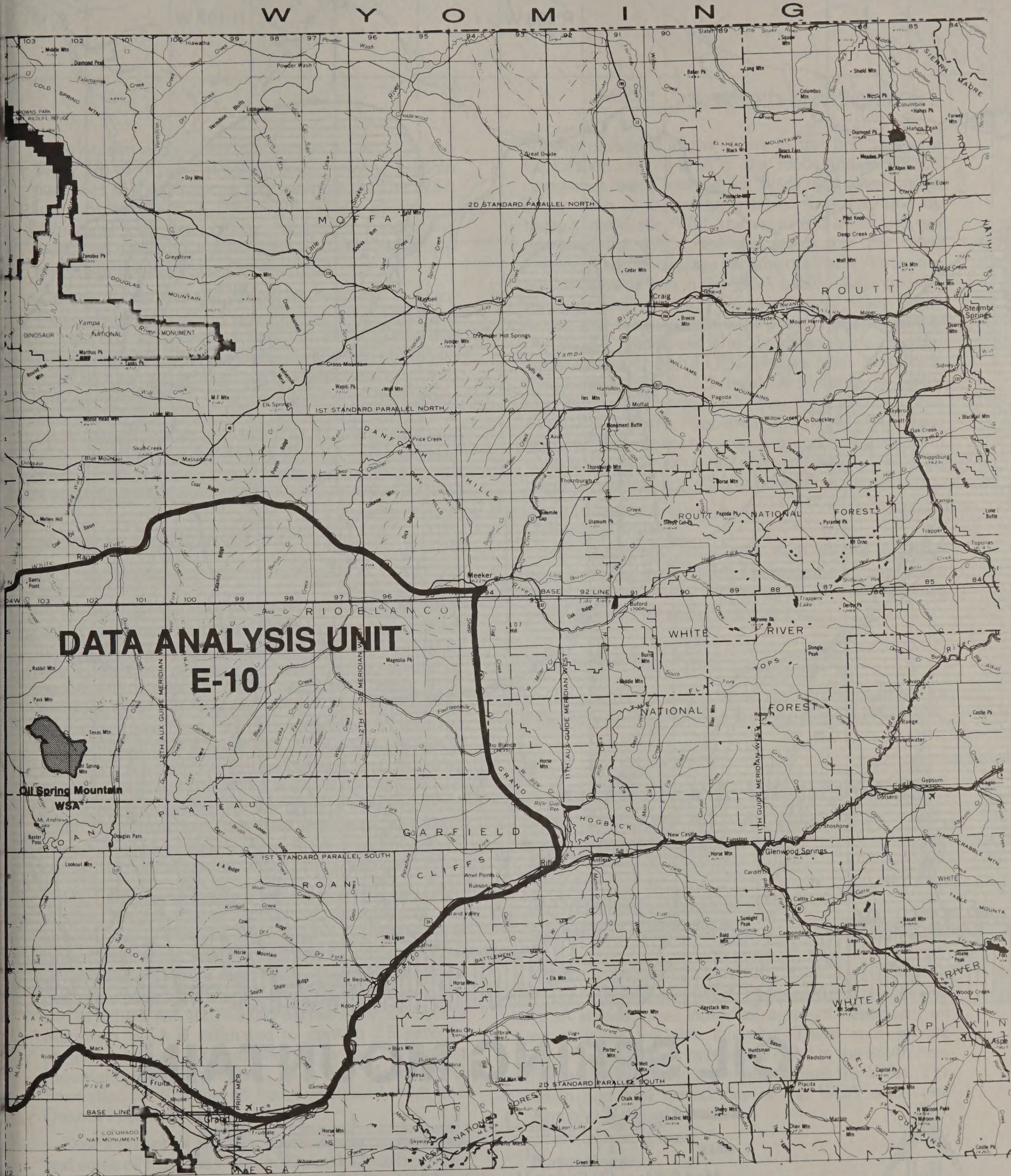


OIL SPRING MOUNTAIN

Map 3-29. Oil Spring Mountain - Mule Deer Habitat
(Data Provided by Colorado Division of Wildlife)

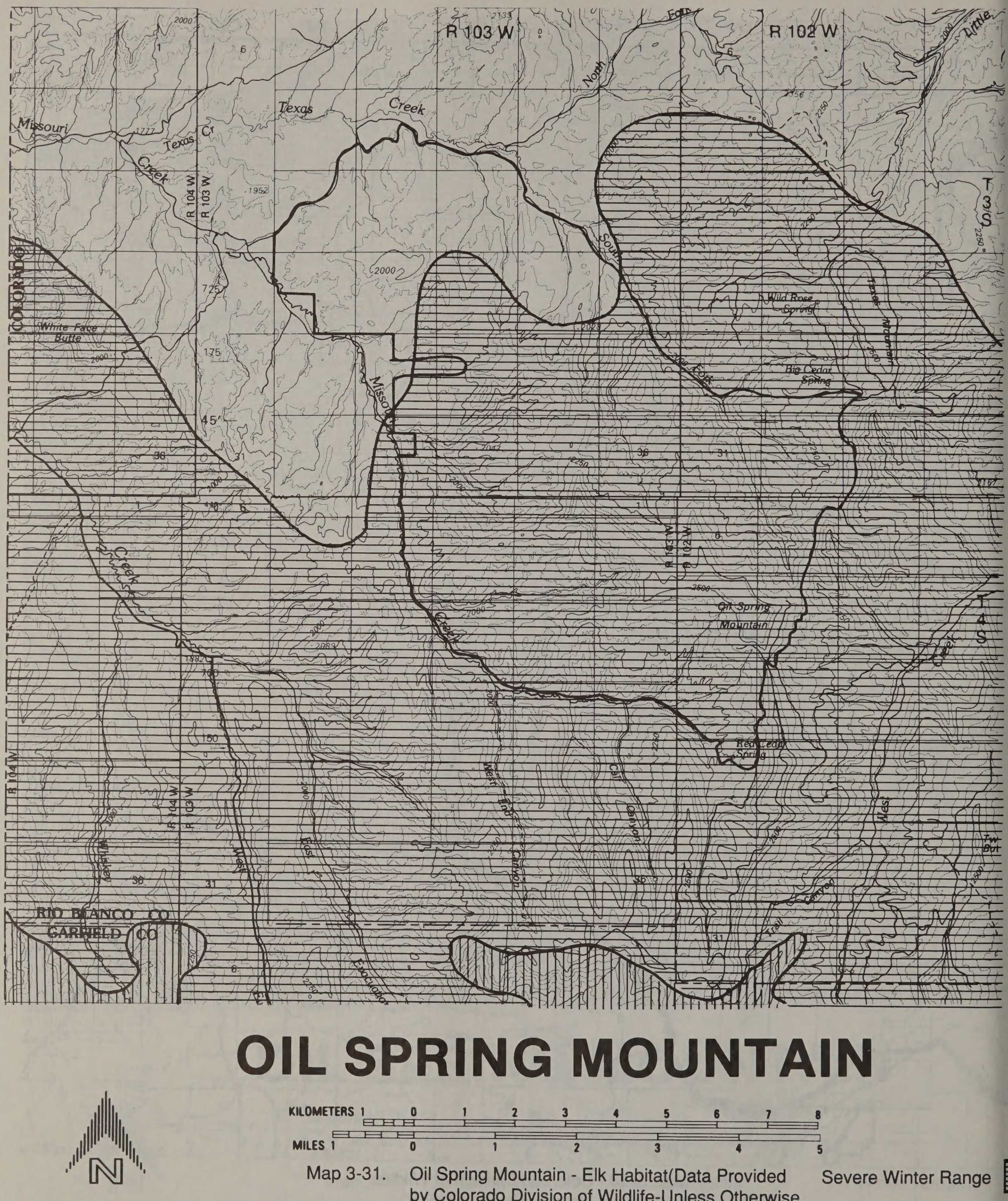
Winter Range ▤

Summer Range ▥



Map 3-30 Colorado Division of Wildlife
Data Analysis Unit E-10

Scale 1:1,000,000
1 inch equals Approximately 16 miles



OIL SPRING MOUNTAIN

Map 3-31. Oil Spring Mountain - Elk Habitat(Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Area Not Considered Elk Habitat)

Severe Winter Range ☰

Summer Range ▥

No golden eagle nests are known to occur in the WSA. Up to 10 pairs of golden eagles may nest within five miles of the Oil Spring Mountain WSA. The WSA has not received a thorough raptor inventory. Additional cliff nesting (i.e., red-tailed hawk) and woodland nesting (Coopers hawk and long-eared owl) raptors undoubtedly occupy the WSA.

Black bears can be found in much of western Colorado, and this WSA is not an exception. Because of concern expressed during the scoping meeting wildlife biologists with the Colorado Division of Wildlife (CDOW) were consulted on the importance of, and impaction on, black bear populations in this WSA. Information from CDOW indicates that while some black bears do use the WSA, it is not considered particularly good, special or unique habitat. Based on similar habitat in the vicinity it is estimated that about 5 black bears use the WSA.

MINERAL RESOURCES

Oil and Gas

Oil Spring Mountain WSA is considered to have very high potential for producible oil and gas based on discoveries in and around the WSA (see Map 3-32). There are six wells that are currently capable of production within the WSA boundary. These wells produce from the Mancos "B" and/or Dakota formations (see Figure 3-5). The Mancos "B" is found at a depth of 1,500 to 5,000 feet and the Dakota Sands at about 5,000 to 7,500 feet below land surface. Most of the WSA is not yet drilled even though almost half of the oil and gas leases are pre-FLPMA (see Map 3-33). The remainder of the WSA is under post-FLPMA leases or expired leases. The WSA is estimated to contain 12.5 billion cubic feet of producible gas.

The Oil Spring Mountain WSA lies on the west side of the Douglas Creek Arch near the crest of the anticline. The Douglas Creek Arch constitutes the largest federal gas field in Colorado. Total production to date and estimated reserves for the Douglas Creek Arch (see Map 3-34) is approximately 500 billion cubic feet of natural gas and 250,000 barrels of oil. Oil Spring Mountain WSA is estimated to contain 2.5 percent of that amount. Gas production in the Oil Spring Mountain Area is primarily from the Mancos "B" Formation with some oil being produced from the Dakota Formation.

Development of the Mancos Formation gas sands and some oil from the Frontier/Dakota sands has been accomplished to its present level through intensive drilling in the late 1970s and early 1980s. Some drilling activity occurred in the WSA in the first phase of exploration on the arch in the 1950s and 1960s. Oil companies were looking for fields that were much larger than is currently feasible and profitable by today's standards. With the rapid rise in oil and gas prices in the 1970s, the gas sands and the small Frontier/Dakota oil plays became profitable. There are two reasons drilling in the WSA has not kept up with the surrounding area. First, wilderness study designation and the stipulations to prevent impairment of the WSA's wilderness characteristics have discouraged holders of post-FLPMA leases from developing them within the WSA. Second, by the time the height of drilling activity occurred along the Douglas Creek Arch, WSA status concerned the pre-FLPMA lease holders. The concerns revolved around long-term costs and other potential problems associated with development inside a WSA or possible wilderness area.

Other Minerals

No mineral resources other than oil and gas have been identified in the WSA. There are no mining claims or other prior and existing rights except for those outlined in the oil and gas section.

PRIVATE LANDS

No private or state lands are located within the boundary of the WSA. No state lands adjoin the WSA.

TROUBLESOME WILDERNESS STUDY AREA - AFFECTED ENVIRONMENT

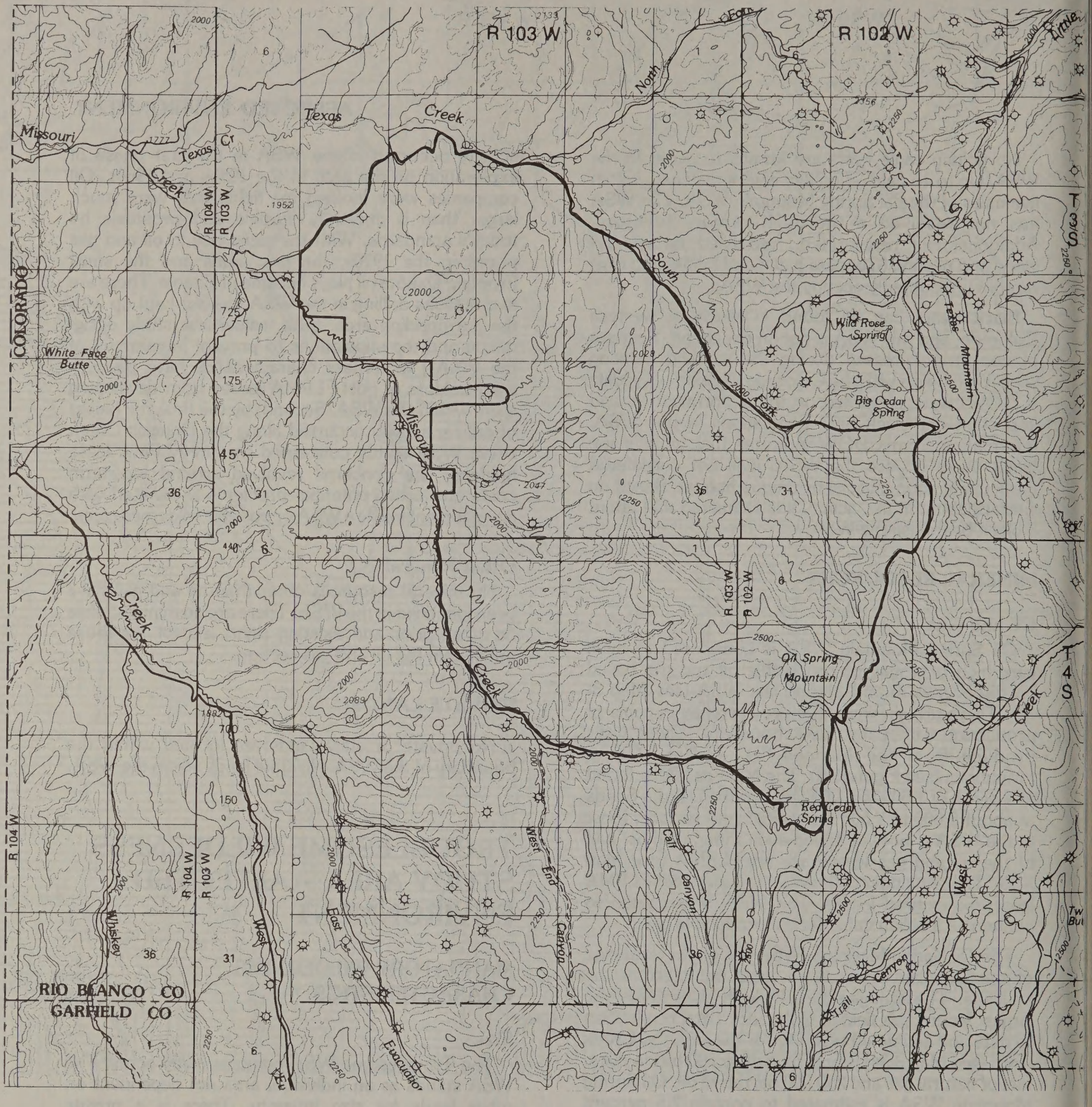
MANDATORY WILDERNESS CHARACTERISTICS

Size

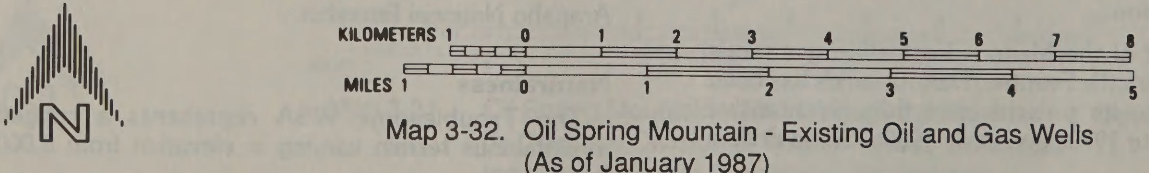
The Troublesome WSA contains 8,250 acres. The WSA stands as an individual area not dependent on other lands for size integrity. There is a private inholding of 625 acres (surface only) in the south one-half of the WSA. No state land adjoins the WSA. The north and east boundaries of the WSA adjoin the Arapaho National Forest.

Naturalness

The Troublesome WSA represents a rugged mountainous terrain varying in elevation from 8,000

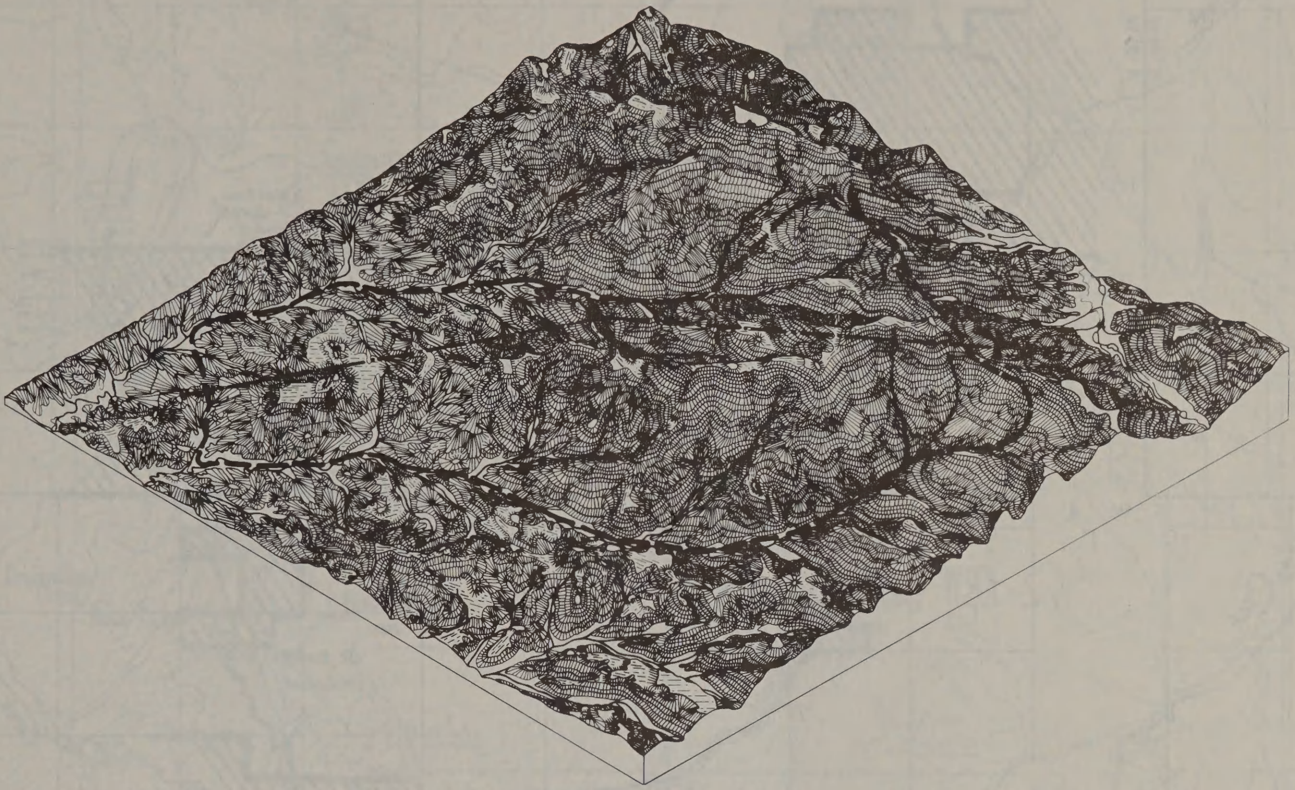


OIL SPRING MOUNTAIN

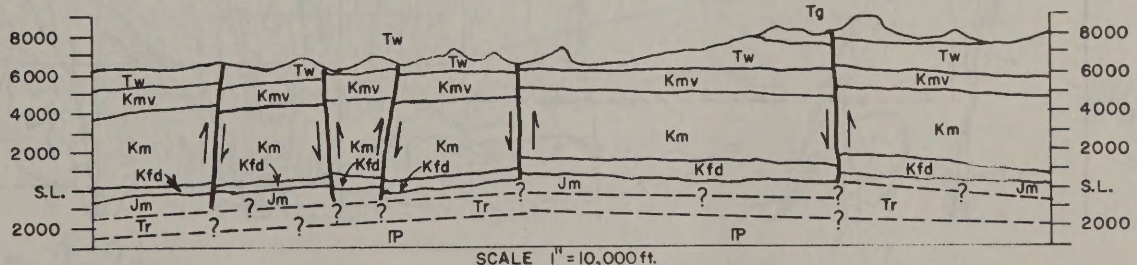


Map 3-32. Oil Spring Mountain - Existing Oil and Gas Wells
(As of January 1987)

Location of Drilling W
Inadequate T
Dry H
Gas W



OIL SPRING MOUNTAIN WSA



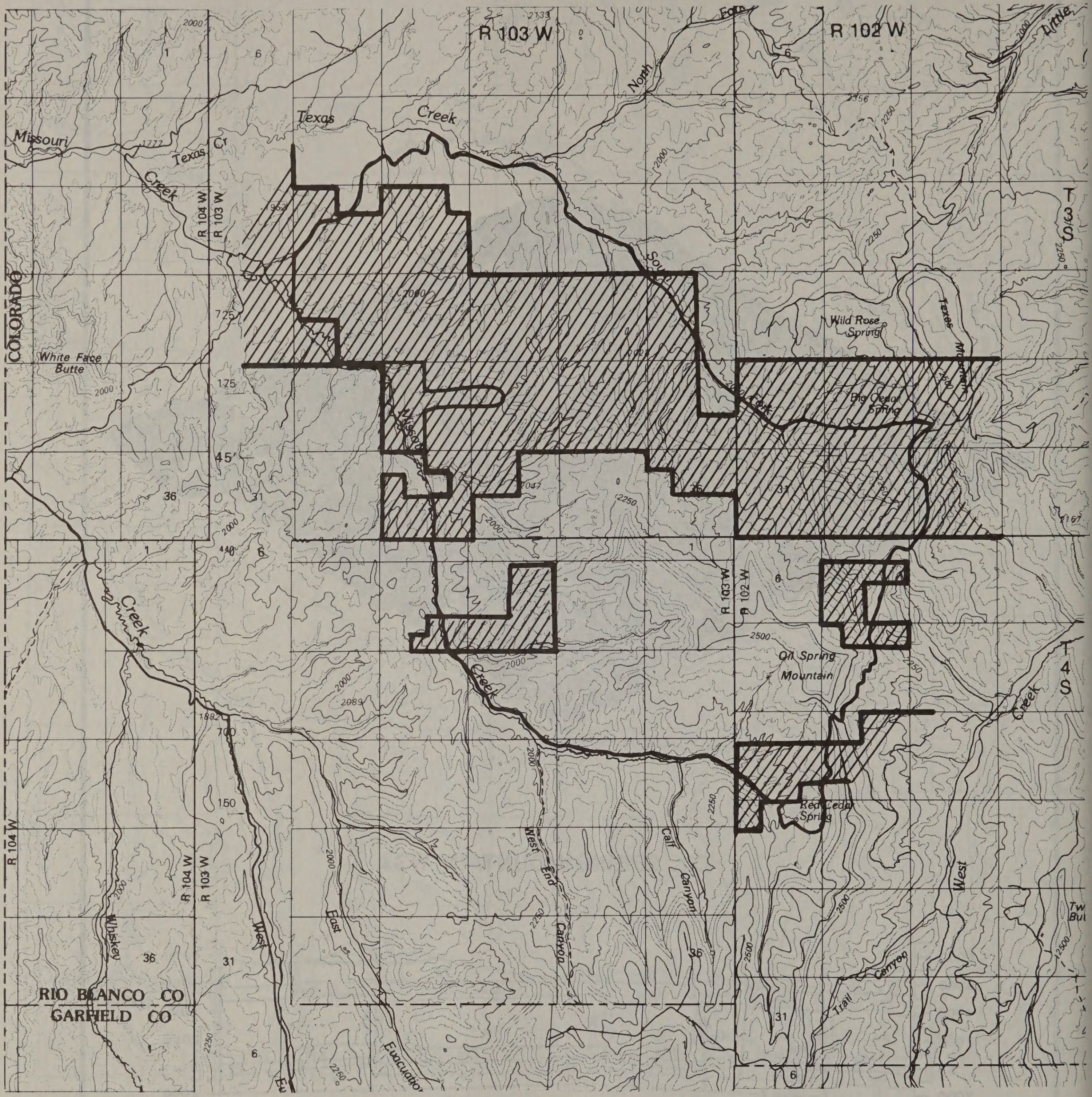
LEGEND

Tg	Tertiary Green River
Tw	Tertiary Wasatch
Kmv	Cretaceous Mesaverde
Km	Cretaceous Mancos Shale
Kfd	Cretaceous Frontier – Dakota
Jm	Jurassic Morrison
℞	Triassic Formations Navajo Ss, Clinle Shinaramp, Moenkopi
IP	Permian – Pennsylvanian

Figure 3-5 . Oil Springs Mountain Geologic Cross Section

James M. Rhett, Geologist 1987

Drafted by : L. Vandiver, CSO



OIL SPRING MOUNTAIN

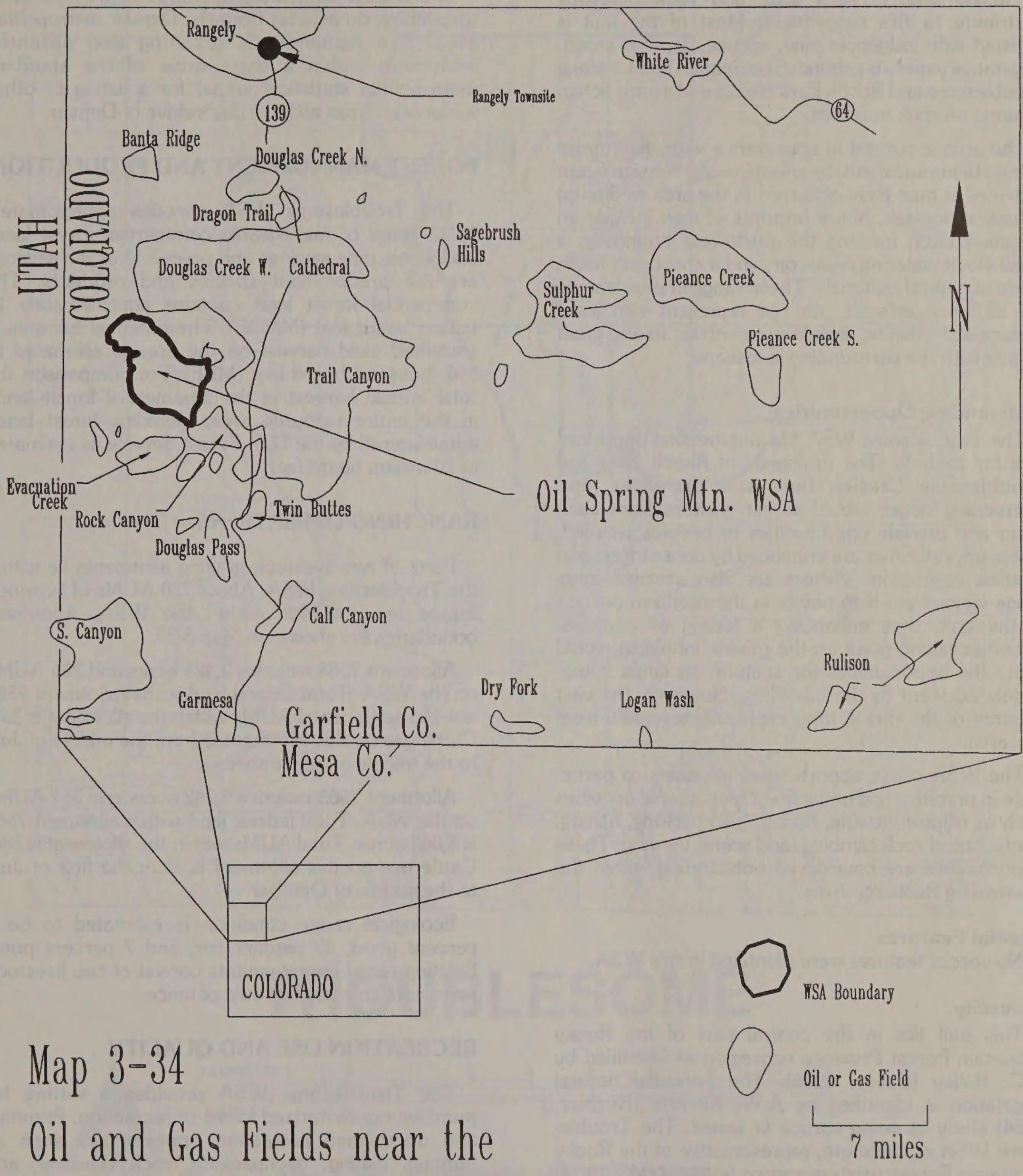
KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

N

Map 3-33. Oil Spring Mountain - Portions of Pre-FLPMA Oil and Gas Leases(As of January 1987)

▨ Pre-FLPMA Oil and Gas Leases



Map 3-34

Oil and Gas Fields near the Douglas Creek Arch

Data from: Scanlon, 1983

to 10,000 feet. A rock slide and rock outcrops contribute to this ruggedness. Most of the unit is forested with lodgepole pine, spruce, fir, and aspen. Vegetative variety is enhanced by riparian habitat along Troublesome and Rabbit Ears creeks and a fungi lichen ecotone on rock outcrops.

The area is natural in appearance with the imprint of man being substantially unnoticeable. No significant activities of man have occurred in the area to disrupt natural processes. Minor imprints of man include an irrigation ditch forming the northwest boundary, a small stock-watering reservoir, and a short drift fence made of natural materials. These range improvements are all small in scale, do not represent significant surface disturbance, and do not contrast to any great degree with the surrounding landscape.

Outstanding Opportunities

The Troublesome WSA has outstanding opportunities for solitude. The drainages of Rabbit Ears and Troublesome Creeks, their side drainages, and intervening ridges would screen visitors from each other and provide opportunities to become isolated. These opportunities are enhanced by dense forest and riparian vegetation. Visitors are also afforded long-range views from high points in the northern portion of the unit, thus enhancing a feeling of vastness. Activities taking place on the private inholding would affect the opportunities for solitude on lands immediately adjacent to the inholding. However, the vast majority of the unit is topographically screened from this area.

The WSA offers opportunities for users to participate in primitive and unconfined recreational activities such as wildlife viewing, hiking, backpacking, fishing, nontechnical rock climbing, and scenic viewing. These opportunities are considered outstanding within the Kremmling Resource Area.

Special Features

No special features were identified in this WSA.

Diversity

This unit lies in the central part of the Rocky Mountain Forest Province ecoregion as identified by R.C. Bailey (Bailey, 1976). The potential natural vegetation is identified by A.W. Kuchler (Kuchler, 1964) study as being spruce fir forest. The Troublesome WSA is, therefore, representative of the Rocky Mountain Forest, western spruce-fir forest (M3110-14) ecosystem. At least 27 designated wilderness areas represent this ecosystem within 200 air miles of the WSA.

The WSA is located within a three to five hour drive (depending on access) from the Denver metropolitan area. See Appendix B (existing and potential wilderness within a day's drive of the standard metropolitan statistical areas) for a listing of other wilderness areas within a day's drive of Denver.

FOREST MANAGEMENT AND PRODUCTION

The Troublesome WSA contains approximately 1,872 acres of manageable commercial forest land. Lodgepole pine sawlogs and poles and aspen sawlogs are the predominant species and products. The commercial forest land contains approximately 15 million board feet (MMBF). The potential full annual sustained yield harvest on the area is estimated at 150 thousand board feet (MBF). For comparison the total annual harvest in the commercial forest lands in the entire resource area, including forest lands administered by the U.S. Forest Service, is estimated at 20 million board feet.

RANCHING OPERATIONS

Parts of two livestock grazing allotments lie within the Troublesome WSA. About 730 AUMs of livestock forage are available within the WSA. Allotment boundaries are shown on Map 3-35.

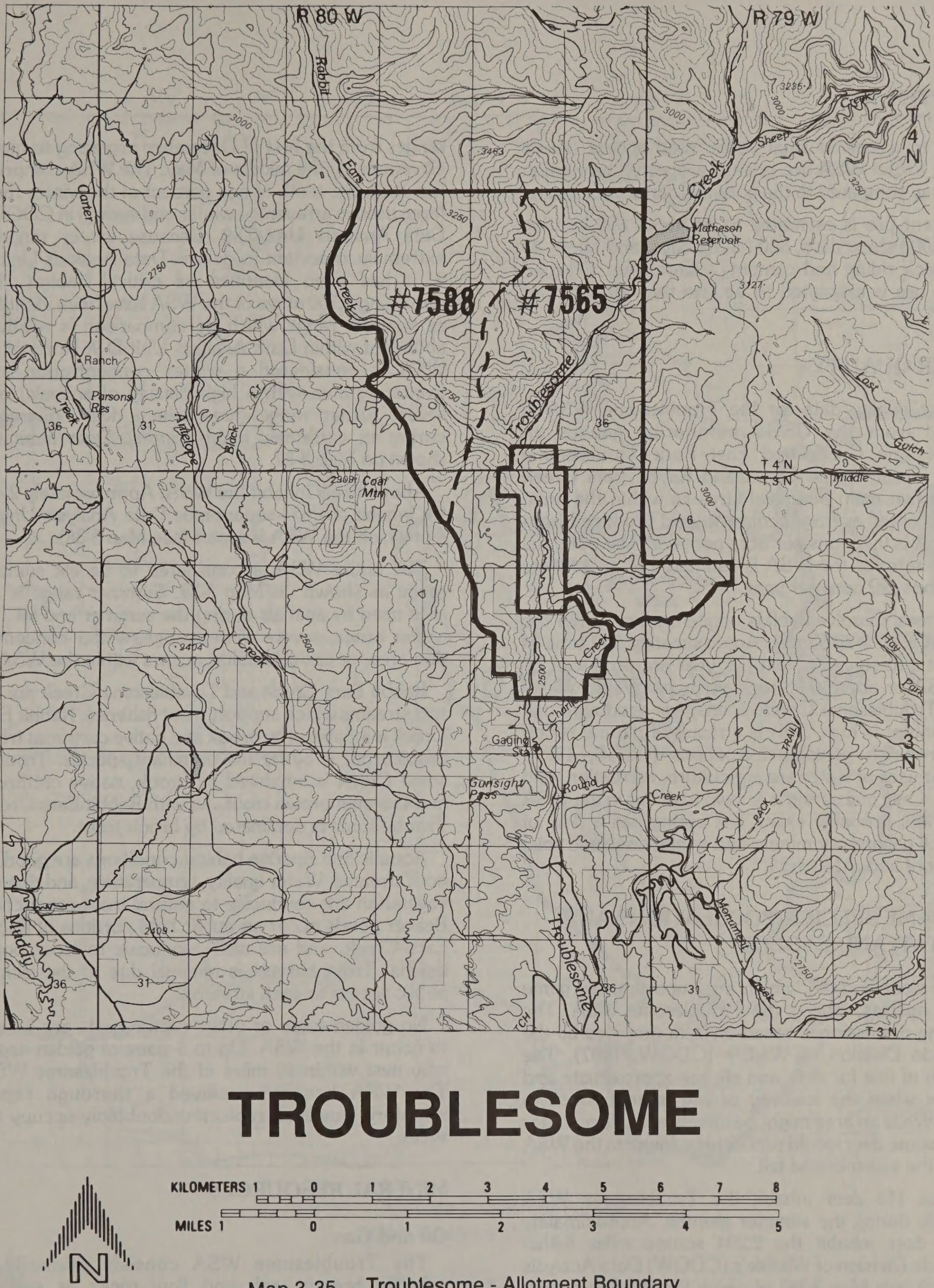
Allotment 7588 includes 2,428 acres and 205 AUMs on the WSA. Total federal land within allotment 7588 is 4,156 acres. Total AUMs within the allotment is 350. Cattle use on this allotment is from the middle of July to the middle of September.

Allotment 7565 includes 5,742 acres and 361 AUMs on the WSA. Total federal land within allotment 7565 is 6,042 acres. Total AUMs within the allotment is 380. Cattle use on this allotment is from the first of July to the middle of October.

Ecological range condition is estimated to be 4 percent good, 89 percent fair, and 7 percent poor. Existing range improvements consist of two livestock reservoirs and one-half mile of fence.

RECREATION USE AND QUALITY

The Troublesome WSA provides a setting for primitive nonmotorized forms of recreation. Primitive and unconfined recreation opportunities such as hunting, fishing, backpacking, rock climbing, and sightseeing make the WSA outstanding within the context of the Kremmling Resource Area.



Map 3-35 Troublesome - Allotment Boundary

Allotment Boundary — — —

Due to a lack of legal public road access (roads leading to the WSA are private property), recreation use is low compared to the potential carrying capacity.

Current use is estimated to be about 800 hunting days, 400 fishing days, 500 hiking days, and about 40 horseback riding and camping visitor days. Off-road vehicle use is estimated to be less than 10 days per year.

WATER QUALITY

Water quality data for the Troublesome WSA is derived from the USGS monitoring gauges on Troublesome Creek and East Fork Troublesome Creek. Troublesome Creek and Rabbit Ears Creek are the two main perennial streams within the area. The estimated average sediment yield produced from the WSA is 0.12 tons per acre per year. The potential erosion rate for the WSA is estimated at an average of 0.2 tons per acre per year.

The total dissolved solids concentration within the WSA averages 12.6 mg/l. Approximately 530 tons of salt (total dissolved solids) per year are produced by the WSA or about 0.06 tons per acre. Water quality in the Troublesome Creek drainage is good although iron content is high. This is a result of natural runoff from iron-rich geologic formations (USGS, 1979). Current uses of water are agriculture, recreation, and wildlife. Only one spring is known to occur in the WSA but others probably exist. The spring has a flow of up to 1.6 gallons per minute and a total dissolved solid content of about 130 mg/l.

BIG GAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Mule deer and elk, which are important big game wildlife species, inhabit the Troublesome WSA. The following discussion is based on data provided by the Colorado Division of Wildlife (CDOW, 1987). The seasons of use for deer and elk are approximate and indicate when the majority of use is anticipated to occur. While an area might be identified as deer winter range, some deer would probably be found in the WSA during the summer and fall.

About 115 deer inhabit the Troublesome WSA primarily during the summer months. Approximately 10,930 deer inhabit the 2,294 square miles within Colorado Division of Wildlife's (CDOW) Data Analysis Unit D-9 (see Map 3-36) of which the WSA is a part. The CDOW has identified 100 acres of the entire 8,250-acre WSA as deer winter range. Deer occupy these ranges from the first of December migrating to higher elevations by the middle of May. The WSA comprises less than one-tenth of one percent of the winter range (area used in an average winter and spring) in CDOW's Data Analysis Unit D-9. Because winter range is extremely important to deer in Data Analysis Unit D-9, it has been identified as critical habitat. The remaining 8,150 acres of the WSA have been identified as summer range which by comparison is relatively abundant within Data Analysis Unit D-9. None of the WSA is considered a winter concentration area (wintering area with a high density of animals) or a severe winter range (area where deer congregate during an extremely harsh winter). Deer habitat is shown on Map 3-37.

About 40 elk inhabit the WSA. Approximately 2,400 elk inhabit the 834-square-mile Data Analysis Unit E-8 of which the WSA is a part (see Map 3-38).

The entire WSA is considered to be elk summer range as shown on Map 3-39. Summer range is the area used by animals during the summer and fall. No winter range, severe winter range, winter concentration area, or critical habitat occurs within the WSA.

Rabbit Ears Creek and Troublesome Creek are the two streams which support trout fisheries. Rabbit Ears Creek is inhabited by brook and native cutthroat trout; brook trout is by far the dominant species. Troublesome Creek is inhabited by brook, native cutthroat, and German brown trout. As with Rabbit Ears Creek, Troublesome is dominated by brook trout.

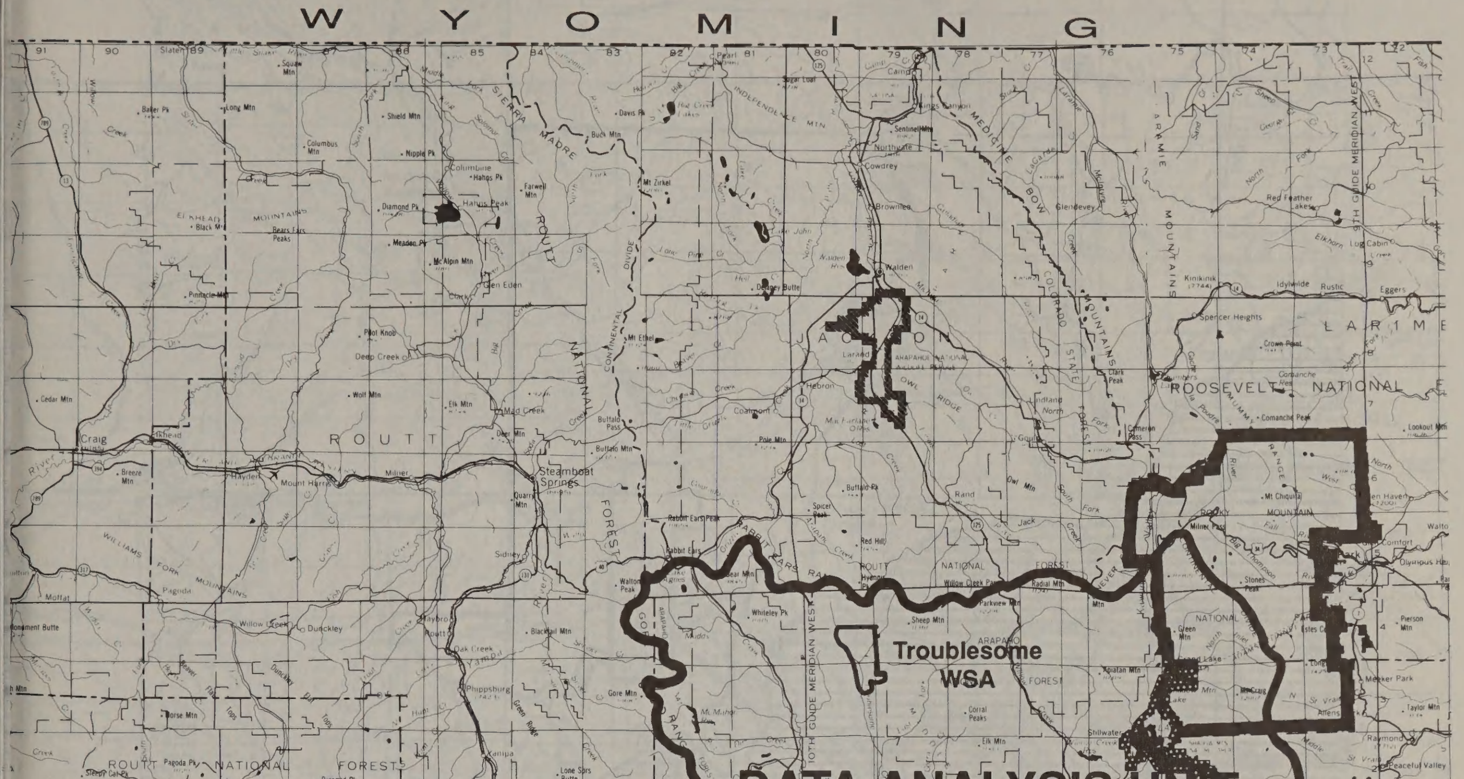
Aquatic and riparian habitat conditions are good for both streams. Water quality, temperature, and riparian vegetation are conducive to natural trout production. Beaver ponds occur on public land portions of Rabbit Ears Creek, and are also conducive to trout populations. Trout harvest is minimal due to the lack of public access to each stream.

No golden eagle or other raptor nests are known to occur in the WSA. Up to 5 pairs of golden eagles may nest within 10 miles of the Troublesome WSA. The WSA has not received a thorough raptor inventory, however, raptors undoubtedly occupy the WSA.

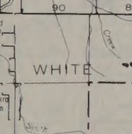
MINERAL RESOURCES

Oil and Gas

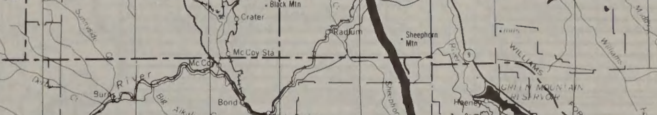
The Troublesome WSA consists primarily of volcanic breccia, ash and flow rocks as surficial geologic cover, over a thin Mesozoic sedimentary

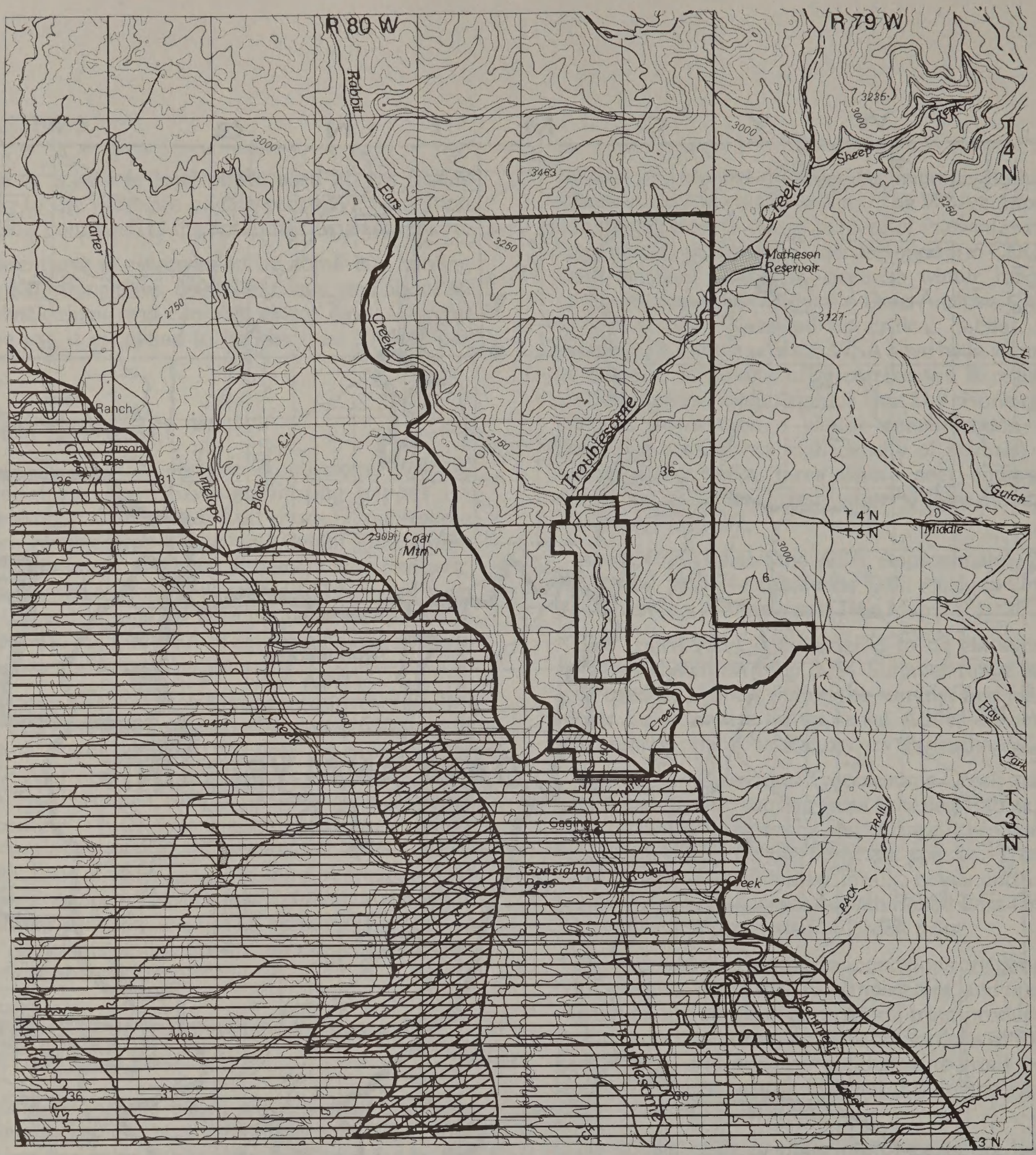


Map 3-36 Colorado Division of Wildlife
Data Analysis Unit D-9



Scale 1:1,000,000
1 inch equals Approximately 16 miles



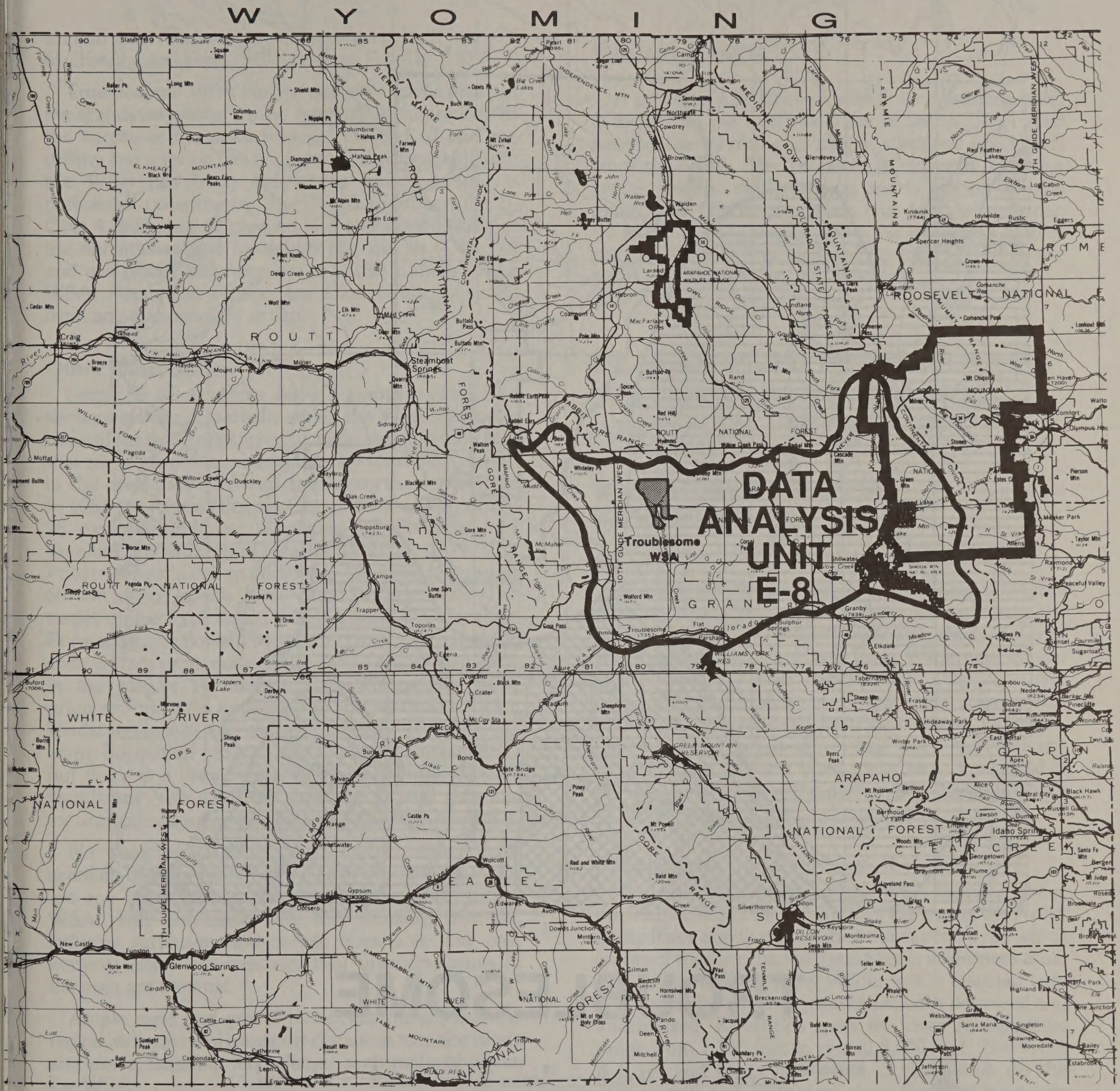


TROUBLESOME

Map 3-37 Troublesome - Mule Deer Habitat(Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Area is Summer Range)

Winter Range ▤

Winter Concentration Area ▦



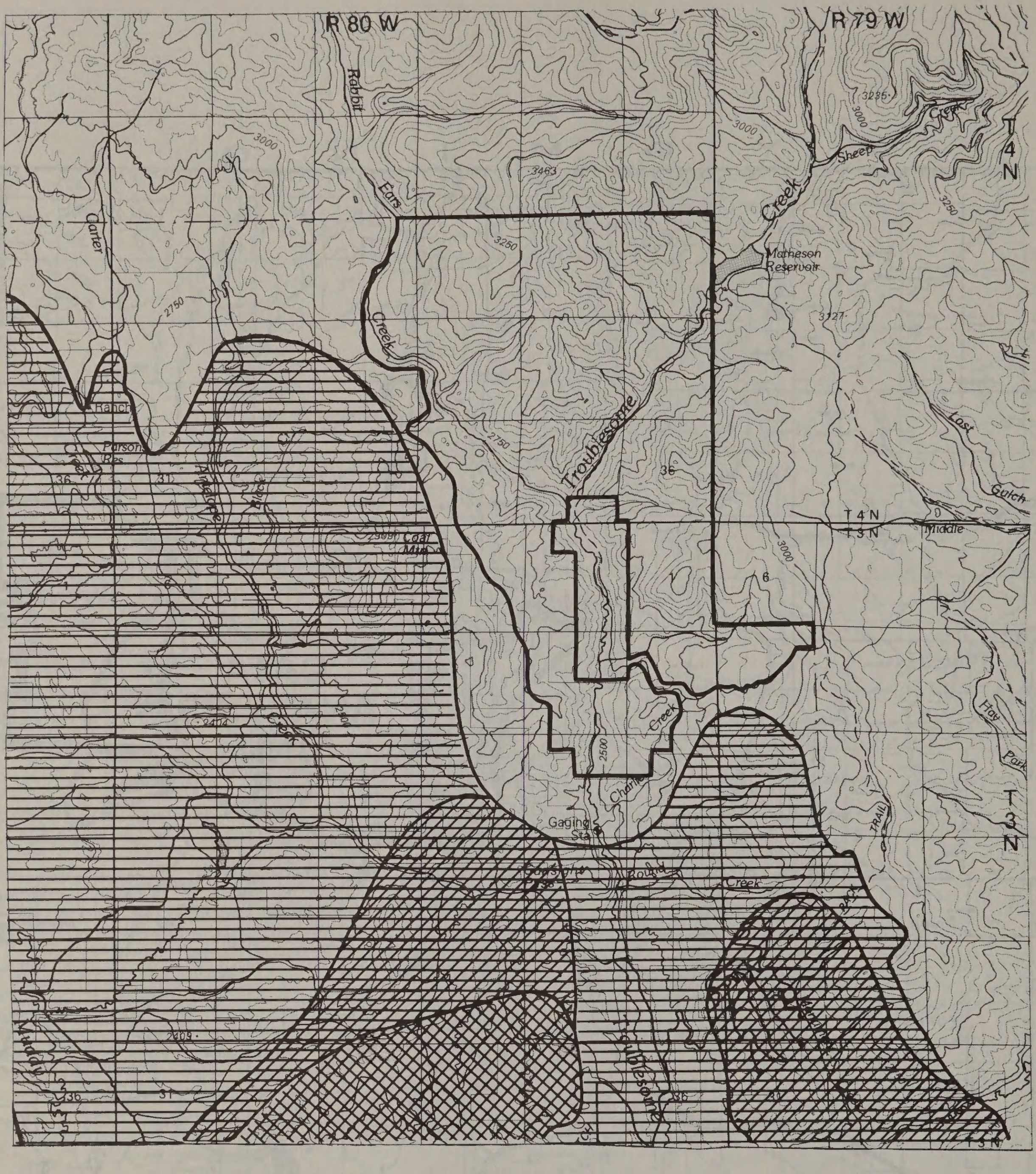
Map 3-38 Colorado Division of Wildlife
Data Analysis Unit E-8

Scale 1:1,000,000
1 inch equals Approximately 16 miles

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometers

N



TROUBLESOME

KILOMETERS 1 0 1 2 3 4 5 6 7 8

MILES 1 0 1 2 3 4 5

N

Map 3-39 Troublesome - Elk Habitat(Data Provided by Colorado Division of Wildlife-Unless Otherwise Indicated Winter Range is Summer Range)

Winter Range ▤

Severe Winter Range ▨

Winter Concentration Area ▩

section and Precambrian basement rocks (Figure 3-6). (Kinney and Hail, 1970, Izett and Bradley, 1973).

Troublesome WSA has no potential for oil and gas mineral development in the foreseeable future due to the nature of the areal geology. Limited oil and gas drilling and interest has occurred in the area, although the WSA has been defined as having unknown petroleum potential by the USGS (Spencer, 1982). Only 4 drillholes, all plugged and abandoned, exist in the encompassing 4 townships and ranges (Colo. oil and gas plats), and none occur within 2 miles of the WSA. Hence, no oil and gas impacts are expected from any management action.

Other Minerals

Some 86 mine claims have previously existed in sections wholly or partially within the WSA. Although none of these claims currently are active, this indicates that some locatable mineral interest has been present in the area (BLM mining claim records, June,1988). In 1954 the Atomic Energy Commission (AEC) drilled 98 exploration holes, averaging 30 feet deep, for uranium mineralization nearby (T.2 N., R.79 W.). Private firms drilled an additional 125 holes, averaging 60 feet deep, at this same time (Malan, 1957). The target of this exploration was the basal Troublesome Formation, a fluvial, lacustrine and volcaniclastic sedimentary sequence overlying the Tertiary Volcanics in the Middle ParkRabbit Ears Range area. The uranium minerals appeared to be associated with sandstone lenses and organic material. The Troublesome Formation has not been mapped in the WSA, but there is a distinct possibility that similar settings (sandstone, ash and organic material) with potential for uranium mineralization could exist within the WSA.

No commercial mining or mineral extraction of uranium-bearing rocks have occurred in the area, nor are any current claims present in or adjacent to the WSA. This combined with low uranium demand, industry surpluses, and readily obtainable- low cost material elsewhere indicates that uranium values in the area are minimal.

Ample sand and gravel pits occur throughout the region, with minimal transport distances to major roads and users, negating the value of such material within the WSA.

No other known mineralization or interest occurs near the WSA, and mineral values are thought to be nominal.

PRIVATE LANDS

A parcel of 625 acres of private land (surface only) is located in the south one half of the WSA. A road serving the inholding is cherry stemmed (excluded) from the WSA. The property is currently used for recreation and cattle grazing and is owned by nine individuals. Numerous cabins and developments can be found in the inholding and the imprint of man is noticeable. A lack of legal public road access to the WSA makes public access difficult.

PLATTE RIVER CONTIGUOUS WILDERNESS STUDY AREA - AFFECTED ENVIRONMENT

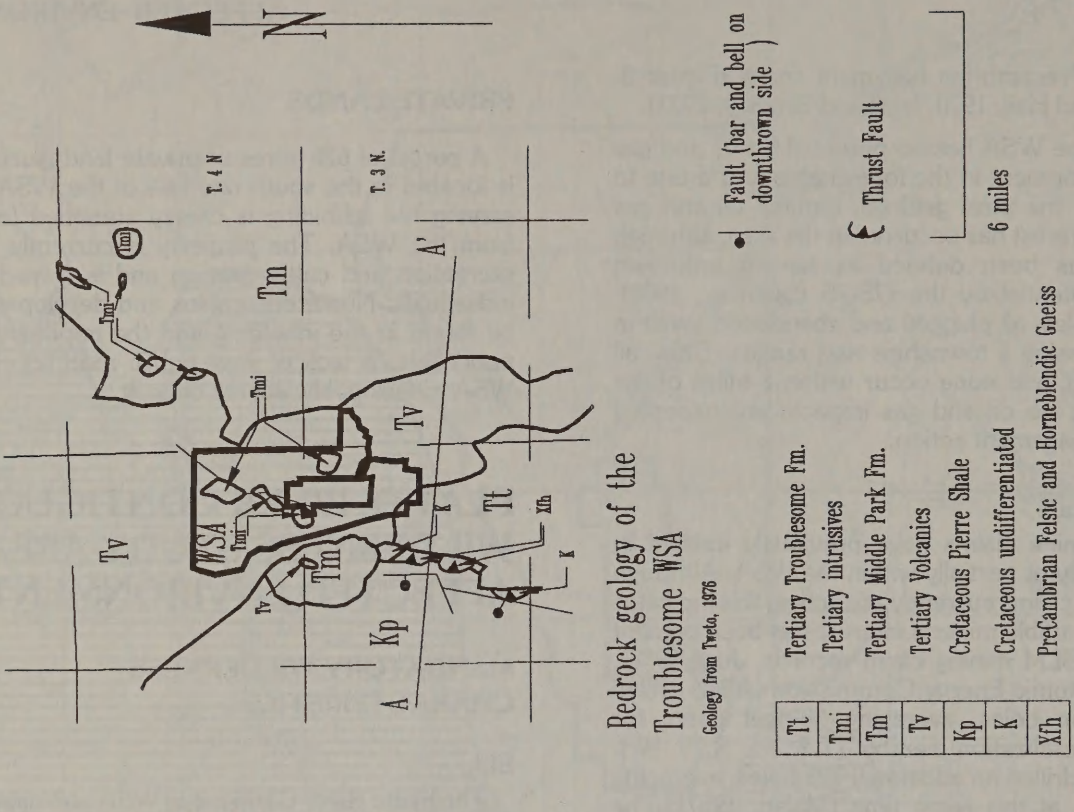
MANDATORY WILDERNESS CHARACTERISTICS

Size

The Platte River Contiguous WSA contains 30 acres of public land. It is adjacent to private land on the north boundary and is contiguous with the 23,000 acre USDA Forest Service Platte River Wilderness on the east boundary. Under the authority of Section 603 of FLPMA, the WSA does not meet the minimum size criteria for wilderness designation on its own. However, because the WSA is dependent upon the adjacent 23,000 Forest Service Wilderness area, it is suitable for designation under the authority of Section 202 of FLPMA.

Naturalness

The Platte River Contiguous WSA includes about one-fourth mile of the North Gate Canyon of the North Platte River and that portion of the canyon's rim which is part of the viewshed of the adjacent wilderness area. The adjacent Platte River Wilderness is bisected with the North Platte river and streams, both perennial and intermittent. Elevations from the river to ridgetops range from 7,760 feet to nearly 8,500 feet. The WSA is 8,340 feet at its high point, a rock knob on the canyon rim; and, 7,980 feet along the west boundary on the low point within the canyon which is nearly 160 feet above the river. Within the WSA, north facing alcoves support a small stand of Douglas-fir trees where shaded areas retain snow and moisture. The remaining areas within the WSA are quite arid. Isolated



Bedrock geology of the Troublesome WSA

Geology from Tweto, 1976

Tt	Tertiary Troublesome Fm.
Tmi	Tertiary intrusives
Tm	Tertiary Middle Park Fm.
Tv	Tertiary Volcanics
Kp	Cretaceous Pierre Shale
K	Cretaceous undifferentiated
Xfh	PreCambrian Felsic and Horneblendic Gneiss

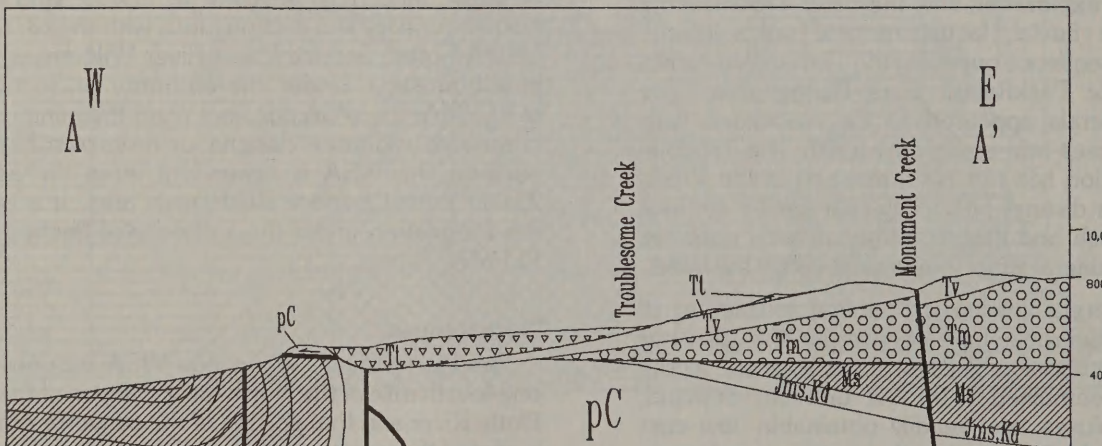


Fig. 3-6

Cross Section Near the South Edge of the Troublesome WSA

- ▨ Tt Tertiary Troublesome Formation
- ☐ Tv Tertiary Volcanics
- ▨ Tm Tertiary Middle Park Formation
- ▨ Ms Mesozoic Sedimentary Rocks undifferentiated

Jms, KD Jurassiac Morrison and Createous Dakota Formations
pC Precambrian (undifferentiated)

Geology from Izett and Barclay (1973)

2 miles

pinyon and juniper trees grow along the canyon rim amongst rocks and boulders. Clumps of sagebrush, rabbit brush, and grasses provide a sparse ground cover due to exposed rock and shallow soils. There are no imprints of man within the WSA since the west boundary follows the highest contour along the canyon rim to include the viewshed from within the adjacent USDA Forest Service Platte River Wilderness. Jeep trails and fences associated with ranching activities and livestock grazing are outside the WSA.

Outstanding Opportunities

Since the WSA is only 30 acres in size, on its own it does not provide outstanding opportunities for solitude or primitive and unconfined recreation. However, the WSA is a dependent part of the North Gate Canyon and USDA Forest Service Platte River Wilderness which does support a variety of nonmotorized recreation activities including whitewater rafting, hiking, camping, fishing, and climbing in a primitive setting. The WSA does include a significant part of the wilderness area's viewshed, the North Gate Canyon, where these activities occur. The configuration of the landscape, deep canyon, and forested lands provide outstanding opportunities for solitude.

Special Features

The nearby presence of the adjacent 23,000 acre USDA Forest Service Platte River Wilderness, North Gate Canyon (which includes the 30 acre WSA), and the North Platte River which is a popular Class IV whitewater floatboating attraction are fundamental to the WSA's suitability for wilderness designation. From the canyon rim (including the public lands designated the Platte River Contiguous WSA), one has spectacular views of the North Gate Canyon, the North Platte River, forested mountains and valleys; and, to the south and west North Park and surrounding mountain peaks.

Diversity

On its own, the WSA is too small to support diverse vegetation or landscapes. However, it is dependent upon the adjacent USDA Forest Service Wilderness area which supports a variety of forest types including Douglas-fir, aspen, juniper, lodgepole pine, limber pine, and pinyon pine. The rock outcrops, canyon walls, North Platte River intermix to provide a unique natural landscape that includes the 30 acre WSA since the WSA is part of the North Gate Canyon.

RANCHING OPERATIONS

The 30 acres of public lands in the Platte River Contiguous WSA is included within BLM Grazing Allotment #7161 which authorizes livestock grazing privileges to the adjacent State Line (A Bar A) Ranch. Due to the sparse vegetation, rocky and steep characteristics of the WSA, it does not support livestock grazing. No fences, stock ponds, livestock, or jeep trails are inside the WSA.

RECREATION USE AND QUALITY

The WSA provides a primitive nonmotorized setting which is dependent upon the adjacent USDA Platte River Wilderness for outstanding opportunities for primitive and unconfined recreation. Current activities within the North Gate Canyon, which includes the 30 acre WSA and is within the 23,000 acre Platte River Wilderness, supports a variety of nonmotorized activities including whitewater floatboating, hiking, hunting, camping, fishing, and climbing.

Current use within the WSA is incidental to low (estimated at 10 visitor days per year), however the adjacent Wilderness Area does receive intensive use (estimated at 3,000 visitor days per year) mostly from whitewater floatboating on the North Platte River through North Gate Canyon. Since the Platte River Contiguous WSA is part of the North Gate Canyon and the USDA Forest Service Wilderness viewshed, viewing of the WSA (although not directly occurring on public land could be considered to much higher).

WATER QUALITY

There are no known sources of water within the WSA.

BIG GAME SPECIES (POPULATIONS AND HABITAT) AND EAGLES

Incidental use by mule deer and elk occurs on the 30 acre WSA but is extremely limited due to the steep rocky terrain. The North Gate Canyon (which includes the WSA) receives use by raptors, however, there are no known nesting sites within the WSA.

MINERAL RESOURCES

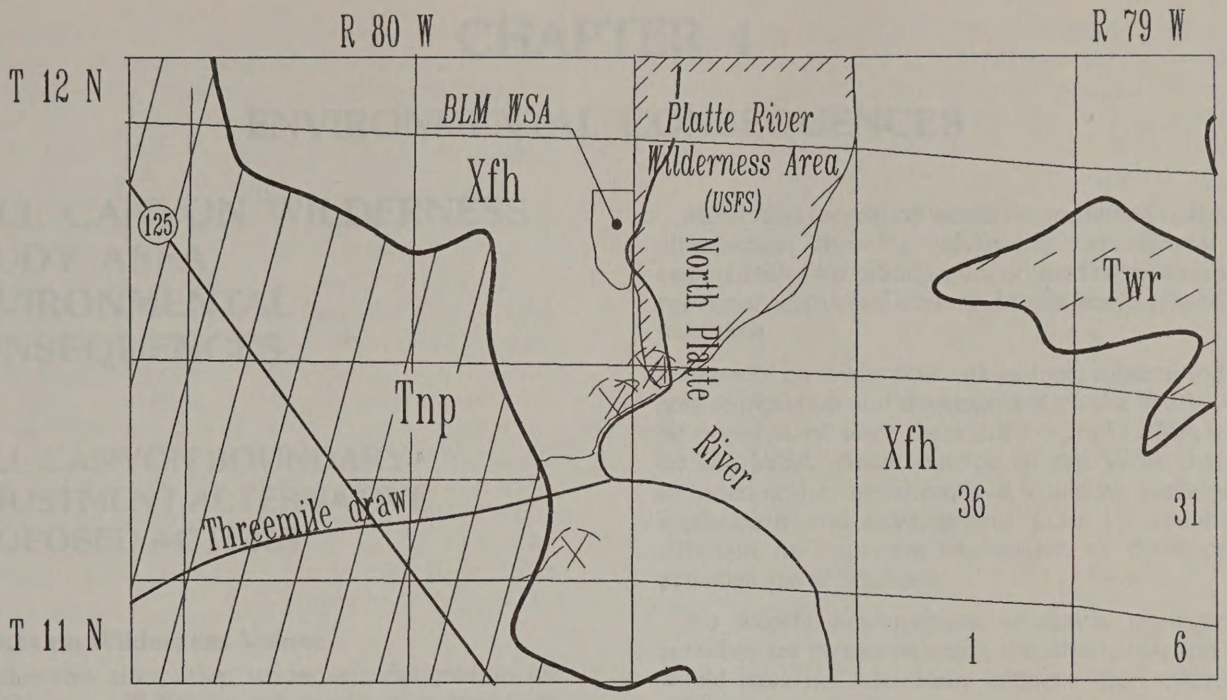
General geology of the WSA is shown on Map 3-40. The BLM land adjacent to the North Platte Canyon WSA includes several old exploration pits and trenches that were worked for Vermiculite (Goldstein, 1946). The WSA also lies adjacent to the North Gate Fluorspar District (Steven, 1960). No mining claims currently exist on the WSA tract, or on the surrounding BLM sections. Steven (1960) concluded that "no commercial grade Vermiculite was seen at any of these localities" (T. 12 N., R. 80 W., Sec. 27 and 34). His mapping of the Fluorspar District shows the nearest mineralization and exploration to be four miles distant. No pre-FLPMA oil and gas leases are in the WSA nor would any leasing be likely to occur due to the Precambrian bedrock (Map 3-40). Hence, no mineral exploration or development is anticipated.

There has been an article that postulates the Precambrian bedrock at this WSA is actually the upper sheet of a large thrust fault, and potential oil and gas bearing rocks lie trapped beneath this layer (Park, 1977). The lack of any sub-thrust drillholes, the paucity of hard data, and lack of leasing for oil and gas in this area reduces the creditability of this theory.

The limited area of the WSA leads to an ability to drain any potential reservoir from drillholes on adjacent lands.

PRIVATE LANDS

There are no private or state lands within the WSA.

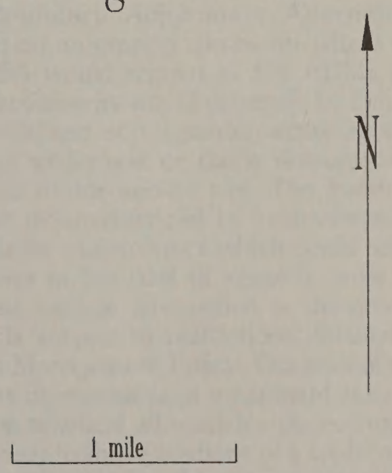


Map 3-40

General Geology of the Platte River Contiguous WSA

Explanation

Twr	Tertiary White River Formation
Tnp	Tertiary North Park Formation
Xfh	Precambrian Felsic and Horneblendic Gneiss
⚒	Vermiculite Workings



Geology from: Tweto, 1976

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

BULL CANYON WILDERNESS STUDY AREA ENVIRONMENTAL CONSEQUENCES

BULL CANYON BOUNDARY ADJUSTMENT ALTERNATIVE (PROPOSED ACTION)

Impacts on Wilderness Values

Under this alternative, wilderness designation for Bull Canyon (12,290 acres) would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation. Activities which may impair the scenic quality of the area (deep colorful canyons and diverse vegetation communities) would be generally prohibited. The boundary adjustments would make the western boundary of the WSA more easily identifiable by using topographic features. They would also preclude intrusion from the road and powerline on the southwestern boundary of distancing the boundary from these disturbances. Diversity within the National Wilderness Preservation System (NWPS) would be slightly enhanced by adding Rocky Mountain forest, juniper-pinyon woodland and Rocky Mountain forest, sagebrush steppe ecosystems to the NWPS. Special features such as the campsite of the Escalante-Dominguez Expedition would also be protected. The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS, but would not help balance the geographic distribution of wilderness due to the proximity of other potential and existing wilderness areas within 200 miles.

Livestock grazing and management under this alternative would not affect wilderness values. Maintenance of existing range improvements could normally be accomplished without the use of motorized vehicles.

Motorized recreation would be prohibited under this alternative, thereby enhancing naturalness and opportunities for primitive unconfined recreation since previously disturbed ways and trails would rehabilitate over time.

Impacts on wilderness values from mineral (oil and gas) exploration and development on the WSA would be nonexistent since there are no pre-FLPMA leases on the WSA. Areas outside of the WSA that are included under this alternative would be available for exploration and development prior to designation although no impairing exploration or development activities are anticipated.

No wildlife improvement or forest management activities are proposed under this alternative and thus would have no deleterious impacts upon wilderness values.

Conclusion

Opportunities for solitude, primitive and unconfined recreation, high scenic quality and the naturalness of the area would be protected on 12,290 acres under the Boundary Adjustment Alternative.

Impacts on Ranching Operations

Under the Boundary Adjustment Alternative, livestock production on grazing allotments within the Bull Canyon WSA would remain at 826 AUMs per year. Range improvements would generally be limited to existing projects and non-impairing activities that would benefit the wilderness or range resource and would not require motor vehicle use. The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance which could result in a slight increase in the cost of keeping cattle on the WSA. Motor vehicle use within a designated wilderness area is subject to restrictions detailed in BLM Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981).

Conclusion

Livestock forage production within the Bull Canyon WSA would remain at current levels of 826 AUMs under this alternative. Operating costs on grazing allotments within the WSA would be slightly higher where livestock operations could be accomplished reasonably without the use of vehicles.

Impacts on Recreation Use and Quality

Under the Boundary Adjustment Alternative, recreation use would total 850 visitor days per year. Motorized vehicle use in the proposed wilderness area would be precluded except when authorized for special circumstances such as emergencies, approved grazing management activities, or access to the private inholding until it is acquired by the BLM. Recreational vehicle use within the WSA is currently estimated at 50 visitor days per year associated with hunting. Off-road vehicle use opportunities would be lost over the WSA under this alternative. Opportunities for this form of recreation are abundant elsewhere on public lands in the region. The opportunities within the WSA represent substantially less than one percent of the opportunities in northwest Colorado.

Primitive recreation opportunities within the WSA would remain unchanged. Nonmotorized hunting would be a major recreational use with approximately 400 visitor days per year. The 50 days of recreational vehicle use would no longer occur, but no change is anticipated in overall hunting numbers. No increase in hunting is expected because it is limited by the number of licenses issued and game availability. Hiking, photography, and horseback travel are estimated to increase to 450 visitor days per year from the current level of 300. This expected increase of approximately 50 percent would be due to public awareness associated with wilderness designation and proximity to Dinosaur National Monument.

Neither designation nor nondesignation would affect the Plug Hat Rock Picnic Area or the Escalante Overlook because no actions are proposed which would have any impacts to these areas. (The portion of the vistas as seen from the Harpers Corner Road that fall within the WSA would remain unchanged. The use of the overlooks by the 70,000 plus annual visitors to Dinosaur National Monument would neither be enhanced nor lessened.)

No forest management, grazing management, wildlife management, or minerals management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Recreation use levels in the proposed wilderness area are expected to increase from 700 visitor days to 850 visitor days per year as a result of designation. Opportunities for primitive and unconfined recreation would remain unchanged in a natural setting.

Impacts on Water Quality

No surface-disturbing activities would occur. While grazing would continue at present levels, no vegetative manipulation would occur. Therefore, there would be no change from present conditions since no surface-disturbing activities are now occurring under BLM's Interim Management Policy. There would be no change in water quality. Present trends and conditions of about 0.5 tons per acre per year of sediment yield would continue. The salt load of 300 to 400 tons per year for the WSA would also continue.

Conclusion

Since no surface-disturbing activities would occur under the proposed action, there would be no change or impact to water quality.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, habitat would remain in present conditions for the current levels of 170 deer, 10 elk, or 2 pair of golden eagles (see Map 3-2). There would be no surface disturbance or other habitat-altering activities. The increase in visitor use of 150 visitor days per year is not enough that the presence of hikers or other wilderness users would alter animal populations or habitat. Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover, however, animal use would be heaviest from November through March when human use would be lightest. Maintenance of existing range improvements may cause a temporary displacement of animals in the immediate vicinity. No forest or minerals management activities would occur; therefore, no associated impacts would result.

Conclusion

Wildlife habitat would remain in present conditions. Animal numbers of 170 deer, 10 elk, and 2 pair of golden eagles would remain unchanged.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of the Bull Canyon WSA would preclude all oil and gas exploration/development on 12,290 acres. The only impact would be that collection of subsurface geologic data would be precluded. The WSA has low potential for the occurrence of oil and gas (see Affected Environment). Further exploration and potential development would be precluded within the WSA.

Other Minerals

The WSA would be closed to mining claims and mineral leasing, although it is unlikely any production, including that from the Glen Canyon Sandstone, would be foregone.

Conclusion

The area (12,290 acres) would be closed to mineral entry. The low potential for exploration and development of oil and gas would be precluded. No subsurface geologic data would be gained.

Impacts on Private Land

The use of the 320 acres of private land inside the Bull Canyon WSA is expected to remain essentially unchanged. The present use is grazing which would be expected to continue under this alternative. BLM would pursue acquisition of the property to enhance management and protect wilderness integrity (see Map 2-1). This change in ownership would preclude developments which might interfere with the area's potential wilderness characteristics. While no developments are anticipated at this time, some development could occur if not publicly owned.

Conclusion

The 320 acres of private land would be proposed for acquisition but current grazing use of the land would continue.

BULL CANYON - ENVIRONMENTAL CONSEQUENCES

BULL CANYON ALL WILDERNESS ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for Bull Canyon (12,297 acres) would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation. Activities which may impair the scenic quality of the area (deep colorful canyons and diverse vegetation communities) would be generally prohibited. Diversity within the National Wilderness Preservation System (NWPS) would be slightly enhanced by adding Rocky Mountain forest, juniper-pinyon woodland and Rocky Mountain forest, sagebrush steppe ecosystems to the NWPS. Special features such as the campsite of the Escalante-Dominguez Expedition would also be protected. The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS, but would not help balance the geographic distribution of wilderness due to the proximity of other potential and existing wilderness areas within 200 miles.

Livestock grazing and management under this alternative would not affect wilderness values. Maintenance of existing range improvements could normally be accomplished without the use of motorized vehicles.

Motorized recreation would be prohibited under this alternative, thereby enhancing naturalness and opportunities for primitive unconfined recreation since previously disturbed ways and trails would rehabilitate over time.

Impacts on wilderness values from mineral (oil and gas) exploration and development on the WSA would be nonexistent since there are no pre-FLPMA leases on the WSA. Areas outside of the WSA that are included under this alternative would be available for exploration and development prior to designation although no impairing exploration or development activities are anticipated.

No wildlife improvement or forest management activities are proposed under this alternative and thus would have no deleterious impacts upon wilderness values.

Conclusion

Opportunities for solitude, primitive and unconfined recreation, high scenic quality and the naturalness of the area would be protected on 12,297 acres under the All Wilderness Alternative.

Impacts on Ranching Operations

Under the All Wilderness Alternative, livestock production on grazing allotments within the Bull Canyon WSA would remain at 826 AUMs per year. Range improvements would generally be limited to existing projects and non-impairing activities that would benefit the wilderness or range resource and would not require motor vehicle use. The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance which could result in a slight increase in the cost of keeping cattle on the WSA. Motor vehicle use within a designated wilderness area is subject to restriction detailed in BLM Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981).

There would be no impact to ranching operations.

Conclusion

Livestock forage production within the Bull Canyon WSA would remain at current levels of 826 AUMs under this alternative. Operating costs on grazing allotments within the WSA would be slightly higher where livestock operations could be accomplished reasonably without the use of vehicles.

Impacts on Recreation Use and Quality

Under the All Wilderness Alternative, recreation use would total 850 visitor days per year. Motorized vehicle use in the proposed wilderness area would be precluded except when authorized for special circumstances such as emergencies, approved grazing management activities, or access to the private inholding until it is acquired by the BLM. Recreational vehicle use within the WSA is currently estimated at 50 visitor days per year associated with hunting. Off-road vehicle use opportunities would be lost over the WSA under this alternative. Opportunities for this form of recreation are abundant elsewhere on public lands in the region. The opportunities within the WSA represent substantially less than one percent of the opportunities in northwest Colorado.

Primitive recreation opportunities within the WSA would remain unchanged. Nonmotorized hunting would be a major recreational use with approximately 400 visitor days per year. The 50 days of recreational vehicle use would no longer occur, but no change is anticipated in overall hunting numbers. No increase in hunting is expected because it is limited by the number of licenses issued and game availability. Hiking, photography, and horseback travel are estimated to increase to 450 visitor days per year from the current level of 300. This expected increase of approximately 50 percent would be due to public awareness associated with wilderness designation and proximity to Dinosaur National Monument.

Neither designation nor nondesignation would affect the Plug Hat Rock Picnic Area or the Escalante Overlook because no actions are proposed which would have any impacts to these areas. (The portion of the vistas as seen from the Harpers Corner Road that fall within the WSA would remain unchanged. The use of the overlooks by the 70,000 plus annual visitors to Dinosaur National Monument would neither be enhanced nor lessened.)

No forest management, grazing management, wildlife management, or minerals management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Recreation use levels in the proposed wilderness area are expected to increase from 700 visitor days to 850 visitor days per year as a result of designation. Opportunities for primitive and unconfined recreation would remain unchanged in a natural setting.

Impacts on Water Quality

No surface-disturbing activities would occur. While grazing would continue at present levels, no vegetative manipulation would occur. Therefore, there would be no change from present conditions since no surface-disturbing activities are now occurring under BLM's Interim Management Policy. There would be no change in water quality. Present trends and conditions of about 0.5 tons per acre per year of sediment yield would continue. The salt load of 300 to 400 tons per year for the WSA would also continue.

Conclusion

Since no surface-disturbing activities would occur under the proposed action, there would be no change or impact to water quality.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, habitat would remain in present conditions for the current levels of 170 deer, 10 elk, or 2 pair of golden eagles (see Map 3-2). There would be no surface disturbance or other habitat-altering activities. The increase in visitor use of 150 visitor days per year is not enough that the presence of hikers or other wilderness users would alter animal populations or habitat. Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover, however, animal use would be heaviest from November through March when human use would be lightest. Maintenance of existing range improvements may cause a temporary displacement of animals in the immediate vicinity. No forest or minerals management activities would occur; therefore, no associated impacts would result.

Conclusion

Wildlife habitat would remain in present conditions. Animal numbers of 170 deer, 10 elk, and 2 pair of golden eagles would remain unchanged.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of the Bull Canyon WSA would preclude all oil and gas exploration/development on 12,297 acres. Under the exploration scenario, the only impact would be that collection of sub-surface geologic data would be precluded. The WSA has low potential for the occurrence of oil and gas (see Affected Environment). Further exploration and potential development would be precluded within the WSA.

Other Minerals

The WSA would be closed to mining claims and mineral leasing, although it is unlikely any production, including that from the Glen Canyon Sandstone, would be foregone.

Conclusion

The area (12,297 acres) would be closed to mineral entry. The low potential for exploration and development of oil and gas would be precluded. No subsurface geologic data would be gained.

Impacts on Private Land

The use of the 320 acres of private land inside the Bull Canyon WSA is expected to remain essentially unchanged. The present use is grazing which would be expected to continue under this alternative. BLM would pursue acquisition of the property to enhance management and protect wilderness integrity (see Map 2-1). This change in ownership would preclude developments which might interfere with the area's potential wilderness characteristics. While no developments are anticipated at this time, some development could occur if not publicly owned.

Conclusion

The 320 acres of private land would be proposed for acquisition but current grazing use of the land would continue.

BULL CANYON - NO WILDERNESS ALTERNATIVE (NO ACTION)

Impacts on Wilderness Values

Naturalness and opportunities for solitude in the WSA would decline under this alternative due to the impairing nature of proposed activities (see Map 2-6). Range improvement projects, such as seeding of 311 acres of pinyon/juniper and sagebrush with native and non-native grasses, chaining and burning 826 acres of pinyon/juniper, burning 386 acres of sagebrush, and vehicle use associated with maintaining fences and livestock watering facilities, would eliminate naturalness and solitude in the immediate vicinity of the projects. A proposed 404 acre juniper fence post sale in the southern portion of the WSA would also reduce naturalness (see Map 2-6). Two well pads and associated roads would reduce and probably eliminate opportunities for solitude and primitive recreation on the eastern half of the WSA through the exploration phase (see Map 2-7). Unrestricted ORV use, which could occur in many of the open areas of the WSAs and in the canyons where much of the hiking use would occur, could affect naturalness and solitude to the point that they would be lost in much of the WSA.

Conclusion

Under the No Wilderness Alternative, the wilderness characteristics of solitude and naturalness would be lost from a minimum of two-thirds of the WSA through the cumulative effects of projected activities.

Impacts on Ranching Operations

Production of livestock forage under this alternative would increase from 826 to 976 AUMs due to the proposed seeding of 311 acres, burning 386 acres of sagebrush. Chaining and burning 826 acres of pinyon/juniper, and proposed 404 acres of fence post harvesting (see Map 2-6). Maintenance of existing range improvements by vehicle would be allowed under this alternative and would be more cost effective to the grazing permittee than maintenance by foot or horseback. Recreational vehicle use is expected to be about 50 visitor days per year and should not be a factor affecting the ranching operation. No wildlife management projects are proposed under this alternative.

Conclusion

Livestock forage production under this alternative would increase by about 18 percent or 150 AUMs (see Map 3-1). Operating costs associated with range improvement projects would remain at current levels because motor vehicle use would be allowed.

Impacts on Recreation Use and Quality

Recreation use within the WSA would remain at about 300 hiker days per year and 400 hunter days per year for a total of 700 visitor days per year. Off-road vehicle use (a part of hunting use) is expected to remain at 50 visitor days per year. Activities associated with oil and gas exploration, range improvements, and forest management would degrade the opportunities for primitive recreation on the WSA. Views from the Plug Hat picnic area and Escalante overlook would include evidence of other resource use such as proposed drill pads, range improvements, roads, and timber sales. No wildlife management projects are anticipated under this alternative.

Conclusion

Recreation use of about 700 visitor days per year would remain at current levels. Primitive recreation opportunities would be degraded by the development of other resources, although the setting would remain predominantly natural.

Impacts on Water Quality

Under the No Wilderness Alternative, there may be an increase in sediment and suspended particulates from 11 acres of oil and gas exploration/ development related disturbance, from 1500 acres of vegetative manipulation (seeding, burning, and chaining) for range improvement, and from 404 acres of fencepost cutting.

The 1,212 acres that would be burned (about 10 percent of the WSA) would result in a short-term (200 percent) increase in sediment yield from current levels of about 0.5 tons per acre per year to 1.5 tons per acre per year on the burned area. This increase is anticipated to last for about three years, after which the increased infiltration resulting from the increase in grasses and vegetation should lower sediment yield about 30 percent from present levels to about 0.35 tons per acre per year. The contribution of salts to the White River (the watershed in which the WSA lies, and also the closest perennial stream or river) would follow the same pattern. The change in sediment yield and contribution of salts due to the chaining would be an increase of about 20 percent for three years and a long-term reduction of about three percent after that.

The two wells with 11 acres of associated disturbance would have an increased sediment yield. However, the small number of acres involved would make any change resulting from oil and gas activities under this scenario unnoticeable.

The 404 acres of fencepost cutting would follow the same pattern, with a short-term increase in sediment yield and salts on about three percent of the WSA. This would increase sediment yield on the short term with a long-term one percent reduction.

The total impact on the sediment yield of the WSA could be an increase of up to 20 percent in the short-term with a long-term decrease of about 3 percent. The short-term increase in salts would be 10 percent and the long-term decrease about 1.6 percent. No impact on any current uses of the water are anticipated.

Conclusion

There would be an increase in sediment yield of up to 20 percent from the WSA in the short-term, although there would probably be a long-term decrease of about 3 percent. The change in salts would be about half that of sediment. This would be an immeasurably small short-term contribution to, or long-term decrease, in sediment and salts in the White River. The long-term changes are well within the natural variation of up to 25 percent.

Impacts on Big Game Species (Populations and Habitat) and Eagles

The seeding of 311 acres, burning/chaining of 1,200 acres, and the post pole cutting area of 404 acres, would slightly improve the big game habitat by creating more forage. In general, any activity that sets back ecological succession (the existing pinyon-juniper woodland is climax vegetation in this case) would cause a greater juxtaposition of grasses, forbs, and shrubs. Projects of this nature tend to enhance overall variety, forage and diversity, while providing a better balance of cover and forage types. Animal use on the WSA may increase by up to 15 deer and one or two elk but would not be reflected in larger populations in the area.

Up to 11 acres could temporarily be disturbed by oil and gas-related exploration. Short-term displacement of big game and temporary non-use of available habitats around the activity centers would result from drilling activities.

The golden eagle and other raptor nests identified in future inventories prior to surface disturbance would be protected by avoidance or the use of seasonal restrictions on activities. Because they would be

The golden eagle and other raptor nests identified in future inventories prior to surface disturbance would be protected by avoidance or the use of seasonal restrictions on activities. Because they would be protected, no impacts to raptors are anticipated.

Conclusion

There would be an increase of about 15 deer (to a total of 185) and 2 elk (to a total of 12) currently using the WSA. No impacts to golden eagles or other raptors are anticipated because they would be protected.

Impacts on Mineral Exploration and Production

Oil and Gas

All lands within the WSA would be available for oil and gas leasing under the No Wilderness Alternative. Under the exploration scenario, subsurface geologic data would be collected, but no oil and gas resources are projected to exist to be developed. The WSA has low potential for the occurrence of oil and gas (see Affected Environment). The potential that exists within the WSA, however, could be realized.

Other Minerals

Other leasable and locatable mineral resources would be available for leasing and location of mine claims. Sand from the Glen Canyon Sandstone is the only prospectively valuable mineral in the WSA. Since the Glen Canyon sandstone is found all over northwest Colorado, it is expected that sources closer to transportation and markets would be developed instead of the Bull Canyon resource.

Conclusion

The area (12,297 acres) would be open to leasing, exploration, and development; geologic knowledge of the area would be increased. The low potential of the WSA for oil and gas exploration and development could be realized. No production or development is projected, however.

Impacts on Private Land

No changes of use or ownership on the 320 acres are anticipated. No development of the land is anticipated. The land would remain in private ownership.

Conclusion

No impact or change in ownership of the 320 acres is anticipated. Grazing use of the land would continue.

WILLOW CREEK/SKULL CREEK WILDERNESS STUDY AREAS - ENVIRONMENTAL CONSEQUENCES

WILLOW CREEK - ALL WILDERNESS ALTERNATIVE (PROPOSED ACTION)

Impacts on Wilderness Values

Under this alternative, wilderness designation for Willow Creek would give long-term protection to naturalness, opportunities for solitude and opportunities for primitive and unconfined recreation. Activities which may impair the scenic quality of the area would be generally prohibited. Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding Rocky Mountain Forest, juniper-pinyon woodland and Rocky Mountain Forest, sagebrush steppe ecosystems to the NWPS. Special features such as relic pinyon pines studied for dendrochronological research would also be protected.

The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS, but would not help balance the geographic distribution of wilderness, due to the proximity of other potential and existing wilderness areas within 200 miles.

Livestock grazing and management under this alternative would not affect wilderness values. Maintenance of existing range improvements could be accomplished without the use of motorized equipment.

Motorized recreation would be prohibited under this alternative, thereby enhancing naturalness since previously disturbed ways and trails would rehabilitate over time (see Table 2-4).

Impacts on wilderness values from mineral exploration and development on the WSA would be nonexistent since there are no pre-FLPMA leases or mining claims on the WSA. A 94-acre parcel of split estate (federal surface, private minerals) exists in the northeast corner of the WSA and would be subject to mineral development at the owner's discretion (see Map 2-10). BLM would pursue acquisition of the private mineral rights under this alternative to preclude degradation of wilderness values.

No wildlife or forest management activities are proposed under this alternative and thus would have no impact on wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation, high scenic quality and the naturalness of the area would be protected on 13,368 acres.

Impacts on Ranching Operations

Under the All Wilderness Alternative, livestock forage production on grazing allotments within the Willow Creek WSA would remain at 812 AUMs per year. Range improvements would generally be limited to existing projects (see Map 2-9) and nonimpairing activities that would benefit the wilderness or range resource and would not require motor vehicle use (see Map 3-6). The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance which could result in a slight increase in the cost of keeping livestock on the WSA. Motor vehicle use within a designated wilderness area is subject to restrictions detailed in BLM Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981).

No forest management, wildlife management, minerals management, or recreation management proposals have been made that would impact ranching operations under this alternative.

Conclusion

Livestock forage production within the Willow Creek WSA would remain at the current level of 812 AUMs. Operating costs on grazing allotments would be slightly higher due to restrictions on vehicle use.

Impacts on Recreation Use and Quality

Off-road vehicle use would be prohibited under this alternative. Opportunities for this form of recreation are abundant elsewhere on public lands in the region. The opportunities within the WSA represent substantially less than one percent of the opportunities in northwest Colorado. Current estimates on off-road vehicle use are 50 visitor days per year associated with hunting.

Primitive recreation opportunities within the WSA would remain unchanged. Hunting would be a major recreational use with approximately 400 visitor days per year. While hunting numbers would not change the 50 visitor days of motorized use associated with hunting would shift to nonmotorized use. Hiking, photography, and horseback travel are estimated to increase to 450 visitor days from the current level of 300. This expected increase of 50 percent would be due to an increase of public awareness associated with wilderness designation and proximity to Dinosaur National Monument. No hunting increase is anticipated since use is limited by the number of licenses issued and game availability. Recreation use would total about 850 visitor days per year.

No forest management, grazing management, wildlife management, or minerals management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Nonmotorized recreation use levels in the proposed wilderness would increase from 700 visitor days to 850 visitor days per year consisting of about 400 hunting and 450 hiking visitor days per year. Off-road vehicle use would be prohibited. Opportunities for primitive and unconfined recreation would remain unchanged in a natural setting.

Impacts on Water Quality

No surface-disturbing activities would occur. While grazing would continue at present levels, no vegetative manipulation would occur. Therefore, there would be no change from present conditions since no surface-disturbing activities are now occurring under BLM's Interim Management Policy. There would be no change in water quality. Present trends and conditions of about 0.4 tons per acre per year of sediment yield would continue. The salt load contribution of 60 to 70 tons per year from the WSA would also continue.

Conclusion

Since no surface-disturbing activities would occur under this alternative, there would be no change or impact to water quality.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, habitat would be maintained in its present condition for the current levels of 190 deer, 50 elk, and 2 pair of golden eagles. Deer, elk, and eagle numbers would also remain unchanged (see Map 3-2). There would be no surface disturbance or other habitat-altering activities. The increase of 150 visitor days per year (hikers or other wilderness users) would not alter animal populations or habitat because of adequate cover in the area. Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Animal use would be heaviest from November through April; however, human use would be lightest during those months. Maintenance of existing range improvements would cause a short-term temporary displacement of animals in the immediate vicinity while people were working. No forest, wildlife, or minerals management activities would occur; therefore, no associated impacts would result.

Conclusion

Habitat would be maintained in its present condition. Animal numbers of 190 deer, 50 elk, and 2 pair of golden eagles would remain unchanged.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of the Willow Creek WSA would preclude all oil and gas exploration and development on 13,368 acres. Subsurface geologic knowledge gathered from such exploration would be precluded. Under the exploration scenario, no producible oil or gas resources exist to be foregone.

The WSA has low potential for the occurrence of oil and gas (see Affected Environment). The potential for further exploration and development would be precluded.

Other Minerals

The WSA would be closed to mining claims and mineral leasing. The potential for uranium, vanadium, and copper mining in the WSA would be foregone, although no development is currently anticipated.

Conclusion

The WSA (13,368 acres) would be closed to mineral entry and the low potential for oil and gas exploration and development would be precluded. No subsurface geologic data would be gathered within the WSA.

Impacts on State and Private Land

Upon designation of the area as wilderness, the BLM would pursue acquisition of a portion of adjoining state Section 16, Township 4 North, Range 102 West (see Map 2-12 and Table 2-3). Current use of the land is for livestock grazing and wildlife habitat which would not change under this alternative. A 94-acre parcel of split estate (federal surface, private minerals) is also located within the WSA (see Map 2-10). BLM would pursue acquisition of the mineral rights to this parcel. Current surface use of the split estate land is for livestock production, wildlife habitat, and recreation. No change is foreseen in land use for this parcel.

Conclusion

Acquisition of a portion of adjoining state land and 94 acres of private mineral estate would be pursued under this alternative. Current uses of the land would continue.

WILLOW CREEK - NO WILDERNESS ALTERNATIVE (NO ACTION)

Impacts on Wilderness Values

Naturalness and opportunities for solitude in the WSA would be lost under this alternative due to the impairing nature of proposed activities. Limited ORV use, although estimated to increase by only 50 percent over an estimated current use of 50 visitor days per year, would not allow the designated ways and trails to revegetate to a natural appearing condition. Oil and gas activities on the area could impact naturalness and solitude through exploration. Two exploratory wells would probably be drilled within the WSA directly impacting about 11 acres; these wells would be noticeable within about one-third of the WSA (see Map 2-13).

No forest management, grazing management, or wildlife management projects are proposed under this alternative and thus would not impact wilderness values.

Conclusion

Under the No Wilderness Alternative, the wilderness values of naturalness and solitude would be lost on about one-third of the WSA due to the cumulative effects of projected activities.

Impacts on Ranching Operations

Production of livestock forage under this alternative would remain at 812 AUMs. No new range improvement projects are proposed. Maintenance of existing range improvements by vehicle would be allowed and would be more cost effective to the grazing permittee than maintenance by foot or horseback. Mineral exploration, consisting of 2 exploratory wells and associated roads, would temporarily remove 11 acres from forage production. This is not expected to reduce the number of AUMs. Recreational vehicle use is expected to increase by about 50 percent over current use, but should not be a factor affecting the ranching operation.

No forest management or wildlife management activities are proposed under this alternative and thus would have no deleterious effects on ranching operations.

Conclusion

Livestock forage production would remain at current levels of 812 AUMs under this alternative.

Impacts on Recreation Use and Quality

Total recreation use within the WSA would remain at about 700 visitor days per year consisting of 300 hiker and 400 hunter days per year. Off-road vehicle use associated with hunting is expected to increase by 50 percent to about 75 visitor days per year. A shift toward motorized hunting use from nonmotorized hunting use would occur, however, overall hunting numbers are not expected to increase. The exploration for oil and gas, likely to occur under this alternative, would involve drilling two wells and disturbing approximately 11 acres with well pads, roads, and support facilities. Primitive recreation opportunities would be lost within sight and sound of the exploration activity (see Map 2-13). Oil and gas exploration could be visible from the Plug Hat Rock trail overlook.

No forest management, grazing management, or wildlife projects are anticipated under this alternative and thus would have no deleterious impacts upon recreation values.

Conclusion

Total recreation use levels would remain at 700 visitor days per year consisting of 300 hiking days and 400 hunter days. Off-road vehicle use associated with hunting is expected to increase to about 75 visitor days per year.

Impacts on Water Quality

The 11 acres of disturbance associated with 2 wells would cause increased sediment yields. However, the small number of acres involved would make any change resulting from oil and gas activities under this scenario unnoticeable.

Since no range projects are proposed, no change would result from them. There would be no measurable impacts to perennial streams since none exist within the WSA. The sediment yield and contribution of salts would become immeasurable when compared to the White River (the watershed in which the WSA lies and the closest perennial stream or river). For comparison natural variation in the area can be as much as 25 percent per year depending on storm duration and intensity.

Conclusion

No noticeable increase in sediment yield and contribution of salts from the WSA would result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of up to 25 percent per year.

Impacts on Big Game Species (Populations and Habitat) and Eagles

No changes in habitat would occur (no range projects are anticipated). The increase of off-road-vehicle use from 50 visitor days per year to 75 visitor days per year is not expected to measurably change animal numbers or habitat from the current 190 deer, 50 elk, and 2 pairs of golden eagles, or their habitats. This is because the use would be of low density and dispersed. Individual animals that may be disturbed would be displaced into nearby cover.

Oil and gas exploration would not cause a large change in existing habitat conditions or animal populations because of the small acreage disturbed. Up to 11 acres could temporarily be disturbed by oil and gas related activity for two oil and gas wells. Short-term displacement of big game and temporary non-use of available habitats around the activity centers would result from drilling activities. This would only last for three to five years until reclamation is complete.

Any golden eagle nests as well as other raptor nests identified through inventories prior to surface disturbance would be protected. This could involve project relocation or restrictions on seasonal activities. Under this alternative, no disturbance of or impact on golden eagle or other raptor nests would be allowed.

Conclusion

Big-game habitat would remain essentially unchanged. Deer and elk populations using the WSA (190 and 50 respectively) would remain unchanged.

Impacts on Mineral Exploration and Production

Oil and Gas

All federal mineral estate within the WSA (13,368 acres) would be available for oil and gas leasing under the No Wilderness Alternative. Under the exploration scenario (see Map 2-13), no oil and gas resources are projected to be produced, however, subsurface geologic knowledge of the WSA would be gained.

The WSA has a low potential for the occurrence of oil and gas (see Affected Environment). The potential of the WSA for oil and gas development could be realized.

Other Minerals

Other leasable and locatable mineral resources would be available for leasing and location of mine claims. The copper, uranium, and vanadium bearing formations of the WSA would be available for sampling and possible mining, although none is anticipated.

Conclusion

The area (13,368 acres) would be open to leasing, exploration, and development; the low potential for oil and gas exploration and development could be realized. No production or development is projected, however.

Impacts on State and Private Land

No state or private land acquisition would be pursued under this alternative. Private mineral ownership on 94 acres of split estate (federal surface, private minerals) would remain with the private owner. While no developments are anticipated, the mineral owner would be free to develop the mineral estate in any manner consistent with applicable laws. Current use of the surface is for grazing.

Conclusion

No impact or change in ownership is anticipated for state or private lands in the area. Current use of the land would continue.

SKULL CREEK - ALL WILDERNESS ALTERNATIVE (PROPOSED ACTION)

Impacts on Wilderness Values

Under this alternative, wilderness designation for Skull Creek would give long-term protection to naturalness and opportunities for solitude and primitive and unconfined recreation. Activities which might impair the scenic quality of the area would be generally prohibited. Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding Rocky Mountain Forest, juniper-pinyon woodland and Rocky Mountain forest, sagebrush steppe ecosystems to the NWPS. Special features such as relic pinyon pines and numerous cultural sites would also be protected.

The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS, but would not help balance the geographic distribution of wilderness, due to the proximity of other potential and existing wilderness areas within 200 miles.

Livestock grazing and management under this alternative would not affect wilderness values. There are no range improvements on the WSA that would require maintenance by motorized equipment.

Motorized forms of recreation would be prohibited under this alternative, thereby enhancing naturalness since previously disturbed ways and trails would rehabilitate over time.

Impacts on wilderness values from mineral exploration and development on the WSA would be nonexistent since there are no pre-FLPMA leases or mining claims on the WSA. However, a 186-acre parcel of split estate (federal surface, private minerals) exists on the northwest corner of the WSA and would be subject to mineral development at the owner's discretion. The acquisition of private mineral rights would be pursued by the BLM under this alternative to preclude degradation of wilderness values.

No wildlife or forest management activities are proposed under this alternative and thus would have no impact on wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 13,740 acres.

Impacts on Ranching Operations

Under the All Wilderness Alternative, livestock forage production on grazing allotments within the Skull Creek WSA would remain at 527 AUMs per year. Range improvements would generally be limited to existing projects and nonimpairing activities that would benefit the wilderness or range resource and would not require motor vehicle use (see Map 2-17). The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance, which could result in an increase in the cost of keeping livestock on the WSA. Motor vehicle use within a designated wilderness area is subject to restrictions detailed in BLM Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981).

No forest management, wildlife management, minerals management, or recreation management proposals have been made that would impact ranching operations under this alternative.

Conclusion

Livestock forage production within the Skull Creek WSA would remain at the current level of 527 AUMs. Operating costs on grazing allotments would be slightly higher due to restrictions on vehicle use.

Impacts on Recreation Use and Quality

Off-road vehicle use would be prohibited under this alternative. Opportunities for this form of recreation are abundant elsewhere on public lands in the region. The opportunities within the WSA represent substantially less than one percent of the opportunities in northwest Colorado. The current estimate of off-road vehicle use within the area is 50 visitor days per year associated with hunting.

Primitive recreation opportunities within the WSA would remain unchanged. Hunting would be a major use with approximately 400 visitor days per year. Hiking, photography, and horseback travel are estimated to increase to 450 visitor days from the current level of 300. This change would be due to an increase of public awareness associated with wilderness designation and proximity to Dinosaur National Monument. No hunting increase is anticipated since use is limited by the number of licenses issued and game availability, although there would be a shift of 50 visitor days per year of motorized hunting to nonmotorized hunting.

No forest management, grazing management, wildlife management, or mineral management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Nonmotorized forms of recreation in the proposed wilderness would increase from 700 to 850 visitor days per year. Off-road vehicle use would be prohibited. Opportunities for primitive and unconfined recreation would remain unchanged in a natural setting.

Impacts on Water Quality

No surface-disturbing activities would occur. While grazing would continue at present levels, no vegetative manipulation would occur. Therefore, there would be no change from present conditions since no surface-disturbing activities are now occurring under BLM's Interim Management Policy. There would be no change in water quality. Present trends and conditions of about 0.5 tons per acre per year of sediment yield would continue. The contribution of about 58 tons of salt (dissolved solids) per year to the White River would also continue.

Conclusion

Since no surface-disturbing activities would occur under this alternative, there would be no change or impact to water quality.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, impacts to habitat would remain in present conditions for the current levels of 190 deer, 10 elk, and 3 pairs of golden eagles. There would be no surface disturbance or other habitat-altering activities. Use by hikers and other wilderness users would not increase enough to alter animal populations or habitat because of adequate cover in the area. Animal disturbance from hikers and other wilderness users would be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Animal use would be heaviest from November through March; however, human use would be lightest during those months. No forest or minerals management activities would occur; therefore, no associated impacts would result.

Conclusion

Habitat would be maintained in its present condition. Animal numbers of 190 deer, 10 elk, and 3 pairs of golden eagles would remain unchanged.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of the Skull Creek WSA would preclude all oil and gas exploration and development. The WSA has a low potential for the occurrence of oil and gas (see Affected Environment). The subsurface geologic knowledge gathered from such exploration would be foregone.

Other Minerals

The WSA (13,740 acres) would be closed to mining claims and mineral leasing. The potential for uranium, vanadium, and copper mining in the WSA would be foregone, although no development is anticipated.

Conclusion

The WSA (13,740 acres) would be closed to mineral entry and the low potential for oil and gas exploration and development would be precluded. No subsurface geologic data would be gathered within the WSA.

Impacts on State and Private Land

Upon designation of the area as wilderness, the BLM would pursue acquisition of portions of state Section 16, Township 4 North, Range 102 West (see Map 2-16 and Table 2-3). Current use of the land is for livestock grazing and wildlife habitat which would not change under this alternative.

A 186 acre parcel of split estate (federal surface, private minerals) is also located within the WSA (see Map 2-12). BLM would pursue acquisition of the mineral rights to this parcel. Current surface use of the split estate is for livestock production, wildlife habitat, and recreation. No change is foreseen in land use for this parcel.

Conclusion

Acquisition of a portion of adjoining state land and 186 acres of private mineral estate would be pursued under this alternative. Current uses of the land would continue.

SKULL CREEK - NO WILDERNESS ALTERNATIVE (NO ACTION)

Impacts on Wilderness Values

Naturalness and opportunities for solitude in the WSA would be lost under this alternative due to the impairing nature of proposed activities. Limited ORV use, although estimated to increase by only 50 percent over the current use of about 50 visitor days per year, would not allow designated ways and trails to revegetate to a natural appearing condition.

Oil and gas activities could impact naturalness and solitude through exploration. One or two exploratory wells would probably be drilled within the WSA, directly impacting about 11 acres and affecting solitude and naturalness on about one-tenth of the WSA.

Range improvement projects, such as burning 330 acres of sagebrush, and chaining and burning 1,550 acres of pinyon-juniper, would impair naturalness on the eastern one-half of the WSA (see Map 2-17).

No forest or wildlife management activities are anticipated under this alternative.

Conclusion

Under the No Wilderness Alternative, the wilderness values of naturalness and solitude would be lost on the eastern half of the WSA due to increased off-road vehicle use and range improvement projects.

Impacts on Ranching Operations

Production of livestock forage under this alternative would increase from 527 AUMs to 656 AUMs.

New range improvement projects would consist of burning 330 acres of sagebrush and chaining and burning 1,550 acres of pinyon-juniper woodland (see Map 2-17).

Mineral exploration, consisting of one or two exploratory wells and associated roads, would temporarily remove 11 acres from forage production. This is not expected to reduce the number of AUMs.

Recreational vehicle use is expected to increase to 75 visitor days per year under this alternative but should not be a factor that affects the ranching operation. No forest management or wildlife management activities are proposed under this alternative.

Conclusion

Livestock forage production would increase from 527 to 656 AUMs.

Impacts on Recreation Use and Quality

Recreation use within the WSA would remain at about 300 hiking and 400 hunting days per year. Off-road vehicle use associated with hunting is expected to increase from 50 to about 75 visitor days per year. While there would be an increase in motorized hunting use, total hunting use is not expected to increase since hunting is limited by the number of licenses issued and game availability. The exploration for oil and gas, likely to occur under this alternative, would involve drilling one or two wells and disturbing approximately 11 acres with well pad, road, and support facilities. Primitive recreation opportunities would be lost within sight and sound of the exploration activity.

Proposed range improvement projects, which include 330 acres of sagebrush burning and 1,550 acres of pinyon-juniper chaining and burning, would seriously degrade opportunities for primitive recreation in the eastern half of the WSA. No forest management or wildlife management activities are proposed under this alternative.

Conclusion

Recreation use levels would remain at current levels of 300 hiking days and 400 hunting days per year. Off-road vehicle use associated with hunting is expected to increase to about 75 visitor days per year. Opportunities for primitive forms of recreation would be lost on the eastern half of the WSA due to projected development.

Impacts on Water Quality

The 1,880 acres of chaining and burning (about 14 percent of the WSA) would result in a short-term (200 percent) increase in sediment yield from current levels of about 0.5 tons per acre per year to 1.5 tons per acre per year on the burned area. This increase is anticipated to last for about three years, after which the increased infiltration resulting from the increase in grasses and vegetation should lower sediment yield about 30 percent from present levels to about 0.35 tons per acre per year. The contribution of salts (total dissolved solids) to the White River (the watershed in which the WSA lies and also the closest perennial stream or river) would follow the same pattern. The change in sediment yield and contribution of salts due to the chaining would be an increase of about 28 percent for three years and a long-term reduction of about four percent after that.

Under this alternative, no producible oil and gas would be found within the WSA. The two exploration wells, with 11 acres of associated disturbance, would produce an increased sediment yield. However, the small acreage involved would make any change resulting from oil and gas activities under this scenario unnoticeable.

As a result of all these actions there would be a short-term increase of about 28 percent and long-term decrease of about 4 percent in sediment yield and salt production. This would be an immeasurably small change in sediment and salts in the White River (the closest perennial stream or river, and watershed in which the WSA lies). These long-term changes are well within the natural variation of up to 25 percent.

Conclusion

There would be an increase in sediment yield and contribution of salts of up to 28 percent from the WSA in the short-term (about 3 years), although there would probably be a long-term decrease of about 4 percent. This would be an immeasurably small short-term contribution to or long-term decrease in sediment and salts in the White River. The long-term changes are well within the natural variation of up to 25 percent.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, no producible oil and gas reserves would be discovered within the WSA, and there would not be any large resulting change in existing habitat conditions or animal populations (190 deer, 10 elk, or 3 pairs of golden eagles). The chaining and burning of 1,880 acres would tend to slightly improve the big game habitat by creating more forage and enhancing habitat diversity. As a result, there could be a small increase in use of the WSA by big game estimated at up to 7 deer and up to 2 elk. In general, any activity that sets back ecological succession (the existing pinyon-juniper woodland is climax vegetation in this case) would cause a greater variety, diversity, and juxtaposition of grasses, forbs, and shrubs. Projects of this nature tend to enhance overall variety, forage, and diversity, while providing a better balance of cover and forage types. The increase in off-road vehicle use of 25 visitor days per year to a total of 75 visitor days per year would damage some vegetation and temporarily displace individual animals into nearby cover. No measurable change is anticipated because the use would be of low intensity and dispersed. The 11 acres of disturbance associated with two exploratory oil and gas wells would be reclaimed and would also not result in any measurable change. However, there may be some temporary displacement during drilling operations. No impacts to golden eagles or other raptors which may be identified in future inventories would occur because the nests would be protected through avoidance or seasonal restrictions. Project areas would be inventoried for raptors prior to any surface disturbance.

Conclusion

There would be an increase in use of about 7 deer and 2 elk from present levels of 190 and 10 respectively. No impacts to golden eagles or other raptors would occur.

Impacts on Mineral Exploration and Production

Oil and Gas

All federal mineral estate within the WSA would be available for oil and gas leasing under the No Wilderness Alternative. Under this alternative, no oil and gas resources would be projected to be produced, however, subsurface geologic knowledge of the area would be gained. The WSA has a low potential for the occurrence of oil and gas (see Affected Environment). The potential of the WSA for oil and gas development could be realized, although no production is anticipated.

Other Minerals

Other leasable and locatable mineral resources would be available for leasing and location of mine claims. The copper, uranium, and vanadiumbearing formations of the WSA would be available for sampling and possible mining although none is anticipated.

Conclusion

The area (13,740 acres) would be open to leasing, exploration, and development; the low potential for oil and gas development could be realized, although no production is anticipated.

Impacts on State and Private Land

No acquisition of state or private land would be pursued under this alternative. Private mineral ownership of 186 acres on split estate (federal surface, private minerals) would remain with the private owner. While no development is anticipated, the mineral owner would be free to develop the mineral estate in any manner consistent with applicable laws. Current use of the surface is for grazing.

Conclusion

No impact or change in ownership is anticipated for state or private lands in the area. Current use of the land would continue.

WILLOW CREEK/SKULL CREEK CONFLICT RESOLUTION ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for 19,698 acres of the combined Willow Creek and Skull Creek WSAs would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation (see Map 2-19). Activities which may impair the scenic quality of the designated area (deep colorful canyons and diverse vegetation communities) would be generally prohibited. Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding additional Rocky Mountain Forest, juniper-pinyon woodland and Rocky Mountain Forest, sagebrush steppe ecosystems to the NWPS. Special features such as relic pinyon pine and numerous prehistoric cultural sites would be protected since motor vehicle access to the area would be prohibited. The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS, but would not help balance the geographic distribution of wilderness, due to the proximity of other potential and existing wilderness areas within 200 miles.

The west side of the Willow Creek WSA (2,430 acres) and the east side of the Skull Creek WSA (4,980) would be removed from wilderness consideration under this alternative. Wilderness values would be lost in these areas due to the probability of mineral exploration on the west side of Willow Creek and proposed range improvement projects on the east side of Skull Creek. Both of these deleted areas would be open to off-road vehicle use which would further impair the values of solitude and naturalness.

Livestock grazing and management under this alternative would not affect wilderness values on 19,698 acres. Maintenance of existing range improvements (see Map 2-9) could normally be accomplished without the use of motorized vehicles. Livestock management activities on the areas not designated wilderness would not be subject to restrictions such as a limitation on motor vehicle use or constraints on vegetative manipulation. Wilderness values of solitude and naturalness would be lost on 4,980 acres of the Skull Creek WSA, because of these activities.

Motorized recreation would be prohibited under this alternative on 19,698 acres, enhancing naturalness since previously disturbed ways and trails would rehabilitate to a natural appearing condition. Motor vehicle use would be allowed on 2,430 acres of the Willow Creek WSA and 4,980 acres of the Skull Creek WSA (both outside of the proposed wilderness boundary). In these areas vehicle use would inhibit the opportunities for solitude and naturalness whenever they occur.

Impacts on wilderness values from mineral development would be nonexistent on the 19,698 acres designated under this alternative since there are no pre-FLPMA leases or mining claims on the WSAs. The western end of the Willow Creek WSA (2,430 acres) and the eastern end of the Skull Creek WSA (4,980 acres), which are not included for designation, would be opened for exploration and development. Mineral development in the 4,980-acre portion of Skull Creek not designated as wilderness is not expected to be significant (no exploratory or development wells are anticipated) and no locatable minerals are expected to be mined. Range improvement projects (see Map 2-17) and off-road vehicle use could seriously detract from wilderness characteristics in this portion of the WSA.

No wildlife improvement or forest management activities are proposed under this alternative and thus would have no deleterious impacts upon wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 19,698 acres and lost on 7,410 acres.

Impacts on Ranching Operations

Under the Conflict Resolution Alternative, livestock forage production on grazing allotments within the Willow Creek/Skull Creek WSA would be 973 AUMs. Range improvements within the designated area (19,698 acres) would generally be limited to maintenance of existing projects (see Map 2-9) and other nonimpairing activities that would not require motor vehicle use. The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance which could result in a slight increase in the cost of keeping livestock on the area. Motor vehicle use within a designated wilderness area is subject to restriction detailed in BLM's Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981). Areas originally within the WSAs but deleted under this alternative (7,410 acres) would not be subject to motor vehicle restrictions or wilderness restrictions. An increase of 129 AUMs (527 AUMs within the Skull Creek WSA) would occur under this alternative for the area outside of the wilderness but within the original WSAs. This increase would come from proposed chaining and burning 1,458 acres of pinyon-juniper and burning 330 acres of sagebrush for range improvements outside of the designated wilderness.

No forest management, wildlife management, or recreation management proposals have been made that would impact ranching operations under this alternative.

Minerals management activities within the designated wilderness would not affect the ranching operation since no pre-FLPMA leases or mining claims exist.

Conclusion

Livestock forage production within the designated wilderness would remain at current levels. Operating costs on grazing allotments within the wilderness area would be slightly higher due to restrictions on vehicle use. Available AUMs within the Skull Creek deletion (527 AUMs currently within the WSA) could increase by 129 due to proposed range improvement projects. There would be a combined net increase of 124 AUMs (from 1,339 AUMs to 1,463 AUMs).

Impacts On Recreation Use and Quality

Under this alternative, motorized vehicle use in the proposed wilderness area would be precluded except when authorized for special circumstances such as emergencies or approved grazing management activities. Recreational vehicle use within the designated area is currently estimated at less than 20 visitor days per year. The areas deleted under this alternative would limit motor vehicle use to designated roads and trails. Vehicle use is estimated to continue at current levels of about 80 visitor days per year outside of the designated area.

Primitive recreation opportunities within the designated area would remain unchanged. Hunting would be a major recreational use with approximately 800 visitor days per year. Hiking, photography, and horseback travel are estimated to increase to 900 visitor days per year from the current level of 600 visitor days per year due to public awareness associated with wilderness designation and proximity of the area to Dinosaur National Monument. There would be no increase in hunting because it is limited by the number of licenses issued and game availability. The 100 visitor days of off-road-vehicle use associated with hunting would continue outside the designated area.

No forest management, grazing management, minerals management, or wildlife management activities are anticipated under this alternative that would impact recreational use or quality on the area designated wilderness.

The two areas that have been deleted under this alternative would be subject to limited ORV use, approximately 1,550 acres of range improvement projects (burning and pinyon-juniper chaining), and mineral exploration. These activities would seriously degrade opportunities for primitive recreation on 7,410 acres outside of the recommended area. Oil and gas exploration could be visible from the Plug Hat Rock trail overlook.

Conclusion

Recreation use levels within the designated area are expected to increase from 600 to 900 visitor days per year for nonhunting and nonmotorized forms of recreation. Hunting use levels are expected to remain at 800 visitor days per year. Recreation use would total 1,700 visitor days per year. Opportunities for primitive and unconfined recreation would be lost on 7,410 acres deleted under this alternative. Development in the 2,430 acres deleted from the Willow Creek WSA would contribute to a loss of scenic quality.

Impacts on Water Quality

The 1,788 acres of vegetative treatments (chaining and/or burning) would result in a short-term increase (200 percent) in sediment yield from current levels of about 0.5 tons per acre per year to 1.5 tons per acre per year on the chained/burned area. This increase is anticipated to last for about three years, after which the increased infiltration resulting from the increase in grasses and vegetation should lower sediment yield about 30 percent from present levels to about 0.35 tons per acre per year on the chained/burned area. The contribution of salts (total dissolved solids) to the White River (the watershed in which the WSAs lie and the closest perennial stream or river) would follow the same pattern. For the WSAs as a whole, the change in sediment yield and contribution of salts due to the chaining and burning would be an increase of about 14 percent for three years and a long-term reduction of about 2 percent after that.

The 2 wells with 11 acres of associated disturbance would cause an increased sediment yield. However, the small number of acres involved would make any change resulting from oil and gas activities under this scenario unnoticeable.

There would be an overall increase in sediment yield and contribution of salts of up to 14 percent in the short-term, and a long-term decrease of about 2 percent. This would be an immeasurably small short-term contribution to or long-term decrease in the sediment and salts the White River. The changes are well within the natural variation of up to 25 percent.

Conclusion

There would be a short-term (about 3 years) increase in sediment yield and contribution of salts of up to 15 percent from the combined WSAs, although there would probably be a long-term decrease of about 1.5 percent. This would be an immeasurably small short-term contribution to, or long-term decrease, in sediment and salts in the White River. These changes are well within the natural variation of up to 25 percent.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Within the 19,698 acres proposed as wilderness under this alternative, habitat would remain in present conditions for the 275 deer, 45 elk, and 4pair of eagles. There would be no surface disturbance or other habitat-altering activities within the area proposed as wilderness. Because of adequate cover the increase in visitor use of 300 visitor days per year, to total 800 hunting and 900 hiking (nonmotorized-nonhunting) days is not enough to alter animal populations or habitat. Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because anticipated users activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Animal use would be heaviest from November through April; however, human use would be lightest during those months. No forest or minerals management activities would occur; therefore, no associated impacts would result.

Within the proposed wilderness area, maintenance of existing range improvements (see Map 2-9) would cause a short-term temporary displacement of animals in the immediate vicinity while people were working.

Oil and gas activities would cause short-term impacts on the deleted (not wilderness) section of Willow Creek. Based on the assumption that no producible oil and gas will be found, about 11 acres of disturbance would occur until the area was reclaimed (three to five years) (see Map 2-13). Short-term displacement of big game and temporary non-use of available habitats around the activity centers would result from drilling. Because of the small acreage disturbed however, any change in habitat use would not change the numbers of animals using the area.

Because golden eagle and other nests would be protected through avoidance or seasonal restriction, and the pair of golden eagles occupying the 2,430 acres would not be impacted.

Within the 4,980 acre Skull Creek deletion area, the 1,788 acres of prescribed burning for range improvements (see Map 2-17) would tend to slightly improve the big game habitat by creating more preferred forage and enhancing habitat diversity. As a result, there could be a small increase in use of the WSA by big game. This increase is estimated at up to 7 deer and up to 2 elk. In general, any activity that sets back ecological succession (the existing pinyon-juniper woodland is climax vegetation in this case) will cause a greater variety, diversity, and juxtaposition of grasses, forbs, and shrubs. Projects of this nature tend to enhance overall variety, forage, and diversity, while providing a better balance of cover and forage types. Off-road vehicle use in the area would continue at current levels of 80 visitor days per year and should not cause any changes in wildlife habitat.

Although no projects are proposed in the Skull Creek deletion of 4,980 acres that would affect them, golden eagles and along with other raptors would be protected.

Conclusion

For both WSAs as a whole, there would be an overall increase in use of about 7 deer and 2 elk from present levels of 380 and 60, respectively. No impacts to golden eagles or other raptors would occur.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of Willow Creek and Skull Creek WSAs (with the deletion of the western wing of Willow Creek and the eastern wing of Skull Creek) would leave the deleted parts available for oil and gas leasing. The major portion of two WSAs recommended for wilderness designation would not be leased. More potential for oil and gas exploration and development would remain with this alternative than with other wilderness alternatives. In exploration for oil and gas, no impacts would result. The WSAs have a low potential for the occurrence of oil and gas (see Affected Environment). Potential for further exploration and development would be foregone in the portion recommended for wilderness.

Other Minerals

The alternative area would be closed to mining claims and mineral leasing. Since both deletions have little or no potential for leasable or locatable minerals, the opening of those areas would only be meaningful to development of oil and gas.

Conclusion

The areas recommended for wilderness (19,698 acres) would be closed to mining claims and leasing and potential oil and gas development would be precluded. No subsurface geologic data would be gathered within these areas. The low potential for oil and gas exploration and development could be realized in those portions not recommended as wilderness (7,410 acres). No production or development is projected, however.

Impacts on State and Private Land

Upon designation of the area as wilderness, the BLM would seek to acquire portions of adjoining state Sections 16 and 36, Township 4 North, Range 102 West, and a portion of Section 16, Township 4 North, Range 101 West (see Maps 2-12 and 2-18, and Table 2-3). Current use of the land is for livestock production and wildlife habitat which would not change under this alternative. A 280-acre parcel of split estate (federal surface, private minerals) is also located within the unit. BLM would seek to acquire the mineral rights to this parcel. Current use of the split estate land is for livestock production, wildlife habitat, and recreation. No change is foreseen in land use for this parcel.

Conclusion

Acquisition of portions of adjoining state lands and 280 acres of private mineral estate would be pursued, but current uses of the land would continue.

WILLOW CREEK/SKULL CREEK COMBINED ALL WILDERNESS ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for 27,108 acres of the combined Willow Creek and Skull Creek WSAs would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation (see Map 2-20). Activities which would impair the scenic quality of the area (deep colorful canyons and diverse vegetation communities) would be prohibited. Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding additional Rocky Mountain Forest, juniper-pinyon woodland and Rocky Mountain Forest, sagebrush steppe ecosystems to the NWPS. Special features such as relic pinyon pine and a number of prehistoric cultural sites would be protected since motor vehicle access would be prohibited. The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS but would not help balance the geographic distribution of wilderness due to the proximity of other potential and existing wilderness areas within 200 miles.

Livestock grazing and management under this alternative, would not affect wilderness values. Maintenance of most existing range improvement could be accomplished without the use of motorized vehicles.

Motorized recreation would be prohibited under this alternative thereby enhancing naturalness since previously disturbed ways and trails would rehabilitate to a natural-appearing condition.

Impacts on wilderness values from mineral exploration and development would be nonexistent since there are no pre-FLPMA leases or mining claims in the area.

No wildlife improvement or forest management activities are proposed under this alternative and thus would have no deleterious impact upon wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 27,108 acres under this alternative.

Impacts on Ranching Operations

Under the combined Willow Creek/Skull Creek alternative, livestock forage production on grazing allotments would remain at 1,339 AUMs. Range improvements would be limited to existing projects and nonimpairing activities that would benefit the wilderness or range resource and would not require motor vehicle use (see Map 2-9). The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance which could result in a slight increase in the cost of keeping livestock on the wilderness area. Motor vehicle use within a designated wilderness area is subject to restriction detailed in BLM Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981).

No forest management, wildlife management, minerals management, or recreation management proposals have been made that would impact ranching operations under this alternative.

Conclusion

Livestock forage production within the combined Willow Creek/Skull Creek wilderness would remain at current levels of 1,339 AUMs under this alternative. Due to restrictions on vehicle use operating costs would be slightly higher.

Impacts on Recreation Use and Quality

Under this alternative, motorized vehicle use in the proposed wilderness area would be precluded except when authorized for special circumstances, such as emergencies or approved grazing management activities. Recreational vehicle use associated with hunting within the combined WSAs is currently estimated at 100 visitor days per year.

Primitive recreation opportunities within the area would remain unchanged. Hunting would be a major recreational use with approximately 800 visitor days per year. The 100 visitor days per year of motorized hunting use would shift to nonmotorized hunting use. Hiking, photography, and horseback travel are estimated to increase by 300 visitor days per year over the current level of 600 visitor days per year due to public awareness associated with wilderness designation and proximity of the area to Dinosaur National Monument. There would be no increase in hunting use since it is limited by the number of licenses issued and by same availability. Total recreation use under this alternative would be 1,700 visitor days per year.

No forest management, grazing management, minerals management, or wildlife management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Recreation use levels are expected to increase from 600 to 900 visitor days per year for nonhunting and nonmotorized forms of recreation. Hunting use levels would remain at 800 visitor days per year. Recreation use would total 1,700 visitor days per year. Opportunities for primitive recreation would be protected on 27,108 acres.

Impacts on Water Quality

No surface-disturbing activities would occur within the Willow Creek and Skull Creek WSAs. While grazing would continue at present levels, no vegetative manipulation would occur. Therefore, there would be no change from present conditions since no surface-disturbing activities are now occurring under BLM's Interim Management Policy. There would be no change in water quality. Present trends and conditions of about 0.4 to 0.5 tons per acre per year of sediment yield would continue. The salt (total dissolved solids) load of about 120 tons per year from the WSAs would also continue.

Conclusion

Since no surface-disturbing activities would occur under this alternative, there would be no change or impact to water quality.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, habitat would remain in present conditions for the 380 deer, 60 elk, and 5 pair of golden eagles. There would be no surface disturbance or other habitat-altering activities. Because of adequate cover in the area, the increase in visitor use of 300 visitor days per year is not enough to alter animal populations or habitat. Deer, elk, and golden eagle habitat and numbers would remain unchanged.

Maintenance of existing range improvements would cause a short-term temporary displacement of animals in the immediate vicinity while people were working. Animal disturbance from hikers and other wilderness users is expected to be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Animal use would be heaviest from November through March; however, human use would be lightest during those months. No forest, wildlife, or minerals management activities would occur; therefore, no associated impacts would result.

Conclusion

Habitat would remain in present conditions. Animal numbers of 380 deer, 60 elk, and 5 pair of golden eagles would remain unchanged.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of the Willow Creek and Skull Creek WSAs would preclude all oil and gas exploration and development. Subsuface geologic knowledge gathered from such exploration would be foregone.

The WSAs have a low potential for the occurrence of oil and gas (see Affected Environment).

Other Minerals

The WSAs (27,108 acres) would be closed to mining claims and mineral leasing. Although no development is anticipated, any potential for uranium, vanadium, and copper mining in the WSAs would be precluded.

Conclusion

The WSAs (27,108 acres) would be closed to mineral entry and the low potential for oil and gas exploration and development would be precluded. No subsurface geologic data would be gathered within the WSAs.

Impacts on State and Private Land

Upon designation of the area as wilderness, BLM would seek to acquire portions of adjoining state Sections 16 and 36, Township 4 North, Range 102 west and a portion of Section 16, Township 4 North, Range 101 West (see Maps 2-12 and 2-16, and Table 2-3). Current use of the land is for livestock production and wildlife habitat which would not change under this alternative.

A 280-acre parcel of split estate (federal surface, private minerals) is also located within the unit. BLM would require the mineral rights to this parcel. Current use of the split estate land is for livestock production, wildlife habitat, and recreation. No change is foreseen in use of this parcel.

Conclusion

Acquisition of portions of adjoining state lands and 280 acres of private mineral estate would be pursued, but current uses of the land would continue.

BLACK MOUNTAIN WILDERNESS STUDY AREA - ENVIRONMENTAL CONSEQUENCES

BLACK MOUNTAIN WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION AND NO ACTION)

Impacts on Wilderness Values

Naturalness and opportunities for solitude in the WSA would be lost under this alternative due to the impairing nature of proposed range improvement projects (see Map 2-22) such as the chaining of 300 acres of pinyon-juniper and the burning and seeding of non-native grasses on 500 acres of sagebrush and pinyon juniper. The location of these projects is such that they would be visible from most of the WSA. Vehicle use associated with the maintenance of fences and livestock watering facilities would eliminate naturalness and solitude in the immediate vicinity of the activity. No forest management, minerals management, wildlife management, or recreation management projects are proposed under this alternative and thus would not impact wilderness values.

Conclusion

Under the No Wilderness Alternative, the wilderness values of solitude and naturalness would be lost over most of the WSA.

Impacts on Ranching Operations

Production of livestock forage under this alternative would increase from 635 to 731 AUMs due to the proposed chaining of 300 acres of pinyon-juniper and the burning and seeding of 500 acres of sagebrush and pinyon-juniper (see Map 2-22).

Maintenance of existing range improvements (see Map 2-23) by vehicle would be allowed under this alternative and would be more cost effective to the grazing permittee than maintenance by foot or horseback. Motorized recreation visitor use is expected to be about 75 visitor days per year and should not be a factor affecting the ranching operation. No forest management, minerals management, or wildlife management projects are proposed under this alternative.

Conclusion

Livestock forage production under this alternative would increase from 635 to 731 AUMs. Operating costs associated with range improvement projects would remain at current levels because use of motor vehicles for maintenance would be allowed.

Impacts on Recreation Use and Quality

Recreation use within the WSA would remain at about 400 visitor days per year for nonmotorized forms of recreation such as hunting, hiking, photography, and horseback travel. Motorized forms of recreation (primarily hunting) would increase from less than 50 visitor days to 75. Total recreation use would be about 475 visitor days per year compared with the present 450.

Range management activities, involving the vegetative manipulation of about 800 acres (burning, chaining, and seeding), would degrade the opportunities for primitive recreation on the WSA. No forest management, minerals management, or wildlife management activities are anticipated under this alternative.

Conclusion

Nonmotorized visitor use within the WSA would remain at current levels of 400 visitor days per year. Motorized recreation use would increase from less than 50 visitor days per year to 75. Total recreation use would increase from 450 to 475 visitor days per year. Opportunities for primitive recreation would be lost on the majority of the WSA.

Impacts on Water Quality

The 500 acres of burning and seeding (about five percent of the WSA) would result in a short-term increase (200 percent) in sediment yield from current levels of about 0.5 tons per acre per year to 1.5 tons per acre per year on the burned area. This increase would last for about three years, after which the increased infiltration resulting from the increase in grasses and vegetation should lower sediment yield about 30 percent from present levels to about 0.35 tons per acre per year. The contribution of salts (total dissolved solids) to the White River, (the watershed in which the WSA lies, and the closest perennial stream or river) would follow the same pattern. For the WSA as a whole the change in sediment yield and contribution of salts due to the burning would be an increase of about 10 percent for three years and a long-term reduction of about 3.5 percent after that.

The chaining of 300 acres of pinyon-juniper (about three percent of the WSA) would probably not result in any short-term increase in sediment yield or salinity. The scarification of the soils and increased vegetation should increase the amount of infiltration and decrease surface runoff and erosion. The resulting decrease in sediment yield and salinity would be about 30 percent from present levels after the first three years, once grasses and other vegetation become established. This would result in a decrease in sediment yield and salt production of about one percent from the WSA. By comparison the natural variation in sediment yield and salts from the WSA is about 25 percent depending on the duration and intensity of precipitation.

Conclusion

There would be a short-term increase (about 3 years) in sediment yields and contribution of salts of about 10 percent, and a long-term reduction of about 4.5 percent after that. The impact or change would be an immeasurably small short-term increase, or long-term decrease, in the sediment and salt loads of the White River. These changes are well within the natural variation of about 25 percent.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, some habitat changes would occur for big game species. The 300 acres of burning and seeding would slightly improve deer habitat (see Map 2-22). Burning and chaining would be expected to increase grasses and forbs which are important source of nutrition for deer during the spring and fall and shrubs that are important deer browse during the late fall and winter. In general, any activity that sets back ecological succession (the existing pinyon-juniper woodland is the climax vegetation in this case) allow grasses, forbs, and shrubs to increase. Projects of this nature tend to enhance overall variety, forage and diversity, while providing a better balance of cover and forage types.

While improvement projects would be designed to increase grass production, a smaller increase in shrubs would occur. The increase in forage may increase the number of deer using the WSA by up to 20. A change in use of 20 deer would not make any measurable difference in the 4,082 square mile Data Analysis Unit D-7 (see Map 3-15) of which this WSA is a part with its estimated 73,290 deer. About three-fourths of the proposed range improvement projects are outside the area classified as elk range (see Map 3-18), therefore, no measurable impacts on or benefits to elk are anticipated.

Burning and chaining conducted in the fall would cause a short-term temporary displacement of animals in the immediate vicinity into nearby cover while people were working, as would maintenance of existing range improvement projects. Any disturbance of animals associated with the increase in recreationists from 400 to 475 visitor days per year would be inconsequential, because additional wilderness user activity would continue to be of low density and dispersed, and would tend to temporarily displace individual animals into nearby cover.

Any golden eagle nests, as well as any other raptor nests, identified in additional inventories prior to surface disturbance, would be protected by relocation of the project or through seasonal restrictions. Because of these protective measures, no impacts to golden eagles or other raptors are anticipated.

No forest or minerals management activities are anticipated to occur; therefore, no associated impacts would result.

Conclusion

Deer habitat would be slightly enhanced, perhaps increasing the number of deer using the WSA from the present 280 to 300 animals. Habitat for the 20 elk and 4 pair of golden eagles would remain unchanged.

Impacts on Mineral Exploration and Production

All lands within the WSA would be reopened to mineral leasing and entry. No producible oil and gas or other mineral resources are known or anticipated in the WSA. Additional subsurface geologic knowledge of the area may be gained by any exploration and prospecting.

Conclusion

There would be no impacts on mineral development. While no development is anticipated to occur, it would not be precluded. Additional subsurface geologic data may be gained.

Impacts on State and Private Land

No private land is located within the WSA. No acquisition of state or private land is anticipated under this alternative.

Conclusion

No change in ownership or use of nonfederal land is anticipated.

BLACK MOUNTAIN WSA - ALL WILDERNESS ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for Black Mountain would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation. Activities which may impair the scenic quality of the area would be prohibited. Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding additional acres of Rocky Mountain Forest juniper-pinyon woodland ecosystems to the NWPS. The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS, but would not help balance the geographic distribution of wilderness, due to the proximity of other potential and existing wilderness areas within 200 miles. Livestock grazing and management under this alternative would not affect wilderness values. Maintenance of most existing range improvements (see Map 2-23) could be accomplished without the use of motorized vehicles. Occasional use of motor vehicles for maintenance of some water developments may be necessary if no alternative is available and use conforms to the BLM Wilderness Management Policy.

Motorized recreation would be prohibited under this alternative, thereby enhancing naturalness since previously disturbed ways and trails would rehabilitate over time.

Impacts on wilderness values from mineral exploration and development would be nonexistent since there are no pre-FLPMA leases or mining claims on the WSA.

No wildlife improvement or forest management activities are proposed under this alternative and no impacts are anticipated to wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 9,932 acres.

Impacts on Ranching Operations

Under this alternative, livestock forage production on grazing allotments within the Black Mountain WSA would remain at 635 AUMs per year. Range improvements would generally be limited to existing projects and new nonimpairing activities that would not require motor vehicle use. Motor vehicle use within a designated wilderness area for maintenance of existing range improvements is subject to restrictions detailed in BLM's Wilderness Management Policy. This could result in a slight increase in the cost of keeping livestock on the wilderness area. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981). It is likely that maintenance by motor vehicle would be required on at least some of the livestock watering facilities shown on Map 2-23.

No forest management, mineral management, wildlife management, or recreation management proposals have been made that would impact ranching operations under this alternative.

Conclusion

Livestock forage production on the Black Mountain WSA would remain at the current level of 635 AUMs. Operating costs on grazing allotments within the WSA would be slightly higher due to restrictions on vehicle use.

Impacts on Recreation Use and Quality

Primitive recreation opportunities within the WSA would remain unchanged. Total recreation use would remain at 450 visitor days per year. Off-road vehicle use would be prohibited. 50 off-road vehicle visitor days currently associated with hunting would shift to nonmotorized use. Opportunities for off-road vehicle recreation are abundant throughout the region. The opportunities within the WSA represent substantially less than one percent of the available opportunities in northwest Colorado.

Motor vehicle use associated with maintenance of range improvement projects could disturb visitors during maintenance activities, but these activities would not be frequent or widespread and should have a minimal impact on recreation opportunities.

No forest management, wilderness management, wildlife management, or minerals management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Primitive recreation opportunities would remain unchanged. Visitor use levels would remain low (450 visitor days per year). Recreational off-road vehicle use (currently less than 50 visitor days per year) would be prohibited.

Impacts on Water Quality

No surface-disturbing activities would occur. While grazing would continue at present levels, no vegetative manipulation would occur. Therefore, there would be no change from present conditions since no surface-disturbing activities are now occurring under BLM's Interim Management Policy. There would be no change in water quality. Present trends and conditions of about 0.5 tons per acre per year of sediment yield would continue. The salt load of 250 to 300 tons per year from the WSA would also continue.

Conclusion

Since no surface-disturbing activities would occur under the proposed action, there would be no change or impact to water quality.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, habitat and animal numbers would remain in present conditions for the 280 deer, 18 elk, and 4 pair of eagles. There would be no surface disturbance or other habitat altering activities. Continued dispersed, low density visitor use of 450 visitor days per year would not alter recreation's effect on animal populations or habitat. Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Animal use would be heaviest from November through April; however, human use would be lightest during those months. Maintenance of existing range improvements would cause a short-term temporary displacement of animals in the immediate vicinity while people were working. No forest or minerals management activities would occur; therefore, no associated impacts would result.

Conclusion

Habitat would be maintained in present conditions. Animal numbers of 280 deer, 20 elk, and 4 pair of golden eagles would remain unchanged.

Impacts on Mineral Exploration and Production

All lands within the WSA would be closed to mineral leasing and entry.

No producible oil and gas or other mineral resources are known or are anticipated in the WSA. With or without wilderness designation, no oil and gas development is anticipated. Therefore, there would be no impact on the development of mineral resources from wilderness designation.

Conclusion

There would be no impacts on producible mineral resources from wilderness designation, since none are known to exist. No additional subsurface geologic data would be gained.

Impacts on State and Private Land

No private land is located within the WSA. No acquisition of private or state land is anticipated under this alternative.

Conclusion

No change in ownership or use of nonfederal land is anticipated.

WINDY GULCH WILDERNESS STUDY AREA - ENVIRONMENTAL CONSEQUENCES

WINDY GULCH WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION)

Impacts on Wilderness Values

Naturalness and opportunities for solitude would be lost under this alternative due to the impairing nature of proposed activities. Range improvement projects, such as chaining and burning 600 acres of pinyon-juniper, and burning 1,040 acres of sagebrush and pinyon-juniper (see Map 2-26 Proposed Range Improvements), and constructing 11 new stock watering ponds would eliminate naturalness over most of the 12,274 acre WSA.

The area would be opened to leasing and mineral entry, although no development is foreseen that would affect wilderness values. Off-road vehicle use would increase slightly over the already low use and is not expected to impact wilderness values.

There are no forest or wildlife management activities proposed under this alternative that would impact wilderness values.

Conclusion

The wilderness values of naturalness and solitude would be lost over most of the 12,274 acre WSA under this alternative due to the impairing nature of proposed projects.

Impacts on Ranching Operations

Production of livestock forage under this alternative would increase from 879 AUMs to 1,071 AUMs in the long term. This would be due to the proposed chaining and burning of 600 acres of pinyon-juniper, burning 1,040 acres of sagebrush and pinyon-juniper, and the construction of 11 livestock watering ponds (see Map 2-26). Maintenance of existing range improvements by motor vehicle would be allowed under this alternative and would be more cost effective to the grazing permittee than maintenance by foot or horseback (see Map 2-27). Recreation use will increase only slightly due to difficulty in obtaining public access and should not affect the ranching operation. No forest management, minerals management, or wildlife management projects are proposed under this alternative.

Conclusion

Livestock forage production under this alternative would increase from 879 AUMs to 1,071 AUMs. Maintenance costs associated with range improvement projects would remain at current levels because motor vehicle use would be allowed.

Impacts on Recreation Use and Quality

Recreation use within the WSA is expected to remain near the current level of less than 30 visitor days per year from hiking and backpacking and 250 to 300 hunting visitor days per year due to lack of legal access for the general public. No off-road vehicle use is known or expected to occur. Hunting-related use accounts for almost all of the recreational use. New range improvement projects would degrade the opportunities for primitive and unconfined recreation. No mineral management, forest management, or wildlife management projects are proposed under this alternative.

Conclusion

Recreation use is expected to remain at current levels of about 250 to 300 visitor days per year for hunting and less than 30 visitor days per year for hiking and backpacking. No off-road vehicle use is known or expected to occur. Opportunities for primitive forms of recreation would be lost due to activities associated with range improvement projects.

Impacts on Water Quality

The 1,640 acres of chaining and burning (about 13 percent of the WSA) would result in a short-term increase (200 percent) in sediment yields from current levels of about 0.2 ton per acre per year to 0.6 ton per acre per year on the burned area. This increase is anticipated to last for about three years, after which the increased infiltration resulting from the increase in grasses and vegetation should lower sediment yield about 30 percent from percent levels to about 0.15 ton per acre per year. The contribution of salts to the White River (the watershed in which the WSA lies and the closest perennial stream or river) would follow the same pattern. For the WSA as a whole, the change in sediment yield and contribution of salt due to the chaining and burning would be an increase of about 26 percent for three years and a long-term reduction of about four percent after that, from present levels.

No oil and gas exploration or development or any other surface-disturbing activities are anticipated. No impacts are anticipated from any of these sources.

Conclusion

There would be a short-term 26 percent increase (for about three years) in sediment yield and produced salts from the WSA and a long-term decrease in sediment yield and produced salts of about four percent after that. The impact or change would be an immeasurably small short-term increase, or long-term decrease, in the sediment and salt loads of the White River. The long-term changes are well within the natural variation of about 25 percent.

Impacts on Big Game Species (Populations and Habitat) and Eagles

The chaining and burning of 1,640 acres would slightly increase the amount of big game forage and habitat diversity within the WSA. As a result, there may be a small increase in the use of the WSA by up to 25 deer and up to 10 elk. Chaining and burning would be expected to increase grasses and forbs which are an important source of nutrition for deer during the spring and fall. These practices may slightly increase shrubs that are particularly important deer browse during the late fall and winter months. It would not measurably increase the number of deer (estimated at 73,290) in the 4,082-square-mile Data Analysis Unit D-7 (see Map 3-15). In general, any activity that sets back ecological succession (the existing pinyon-juniper woodland is the climax vegetation in this case) allows grasses, forbs, and shrubs to increase. Projects of this nature tend to enhance overall forage variety and diversity, while providing a better balance of cover and forage types.

While most of the grass would either be utilized by livestock or would be unavailable because of snow cover during the winter months, some of the forage produced by the chaining and burning would be available for elk use. Elk populations would benefit in a manner similar to deer, such that elk use may increase within the WSA by four or five animals or about ten percent. The increase in deer and animal numbers would be reinforced by the construction of 11 earthen stock ponds. While designed primarily for livestock use, they would also provide water to wildlife using the area. Burning, chaining, and maintenance of existing range improvement projects would cause a short-term temporary displacement of deer and elk in the immediate vicinity into nearby cover while people were working. No change in recreation use is anticipated; therefore, no impacts would result.

Golden eagle nests and other raptor nests identified in additional inventories prior to surface disturbance would be protected by relocation of the project or through seasonal restrictions. Because of these protective measures, no impacts to golden eagles or other raptors are anticipated.

No forest or mineral management activities are anticipated and, therefore, would cause no change or impact.

Conclusion

Deer and elk habitat would be slightly enhanced, perhaps increasing the number of deer currently using the WSA from 350 to about 375. There could be an increase in the number of elk using the WSA from current levels of 40 to about 45. Golden eagle nesting and foraging habitat would remain unchanged.

Impacts on Mineral Exploration and Production

All lands within the WSA would be available for oil and gas leasing under the No Wilderness Alternative. Because of the low potential for discovery of producible oil or gas, there would be no effect on production. Geologic knowledge of the area's subsurface will be increased with the drilling of one or two exploration wells although none are anticipated. Other leasable and locatable mineral resources would be available for leasing and location of mine claims, however, no mineral exploration or development is anticipated. There are presently no mining claims, coal leases, or pre-FLPMA oil and gas leases on the WSA.

Conclusion

The WSA would be open to leasing and mining claims, however, no mineral exploration or development is anticipated. Hence, no impact to mineral resources would occur.

Impacts on Private Land

Under this alternative, no changes in use or ownership would occur on the 320-acre private inholding.

Conclusion

No impact or change in ownership of 320 acres of private land within the WSA is anticipated.

WINDY GULCH WSA - ALL WILDERNESS ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for Windy Gulch would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation on 12,274 acres. Activities that might impair the scenic quality of the area would be prohibited. Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding a Rocky Mountain Forest, juniper-pinyon woodland ecosystem to the NWPS. The addition of this WSA to the National Wilderness Preservation System (NWPS) would increase the acreage of this ecosystem in the NWPS, but would not help balance the geographic distribution of wilderness due to the proximity of other potential and existing wilderness areas within 200 miles.

Livestock grazing and management under this alternative would not seriously impact wilderness values. Use of motorized vehicles for maintenance of range improvements would generally be prohibited. However, where reasonable alternatives to motor vehicles do not exist, they could be used (under restrictions of BLM's Wilderness Management Policy). It is anticipated that some of the existing livestock water developments would require occasional maintenance by motor vehicle. The short duration and sporadic nature of vehicle use is not expected to seriously impact wilderness values.

Motorized recreation would be prohibited under this alternative. Naturalness would be enhanced since existing ways and trails would rehabilitate to a substantially unnoticeable condition and no new trails would be created.

Impacts on wilderness values from mineral exploration and development would be nonexistent since no pre-FLPMA leases or mining claims exist on the area. No forest management or wildlife management activities are proposed under this alternative and thus would have no impact upon wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on the entire 12,274 acre WSA. Naturalness would be enhanced by allowing existing ways and trails to rehabilitate.

Impacts on Ranching Operations

Under the All Wilderness Alternative, livestock forage production on grazing allotments within the Windy Gulch WSA would remain at 879 AUMs per year. New range improvements would be limited to nonimpairing activities that would benefit the wilderness or range resource and not require motor vehicle use (see Map 2-26). The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance, which could result in a slight increase in the cost of keeping cattle on the WSA. Existing range improvements such as stock watering ponds may require maintenance by motor vehicle, but such maintenance would be subject to BLM's Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (BLM, 1981).

No forest management, wildlife management, minerals management, or recreational management proposals have been made that would impact ranching operations under this alternative.

Conclusion

Livestock forage production would remain at the current level of 879 AUMs. Motor vehicle use restrictions for range project maintenance would slightly increase the cost of keeping cattle on the WSA, although the use of mechanized equipment may be allowed under specific conditions for individual projects.

Impacts on Recreation Use and Quality

Primitive recreation opportunities within the WSA would remain unchanged. Use levels are expected to increase due to the acquisition of a right-of-way to allow access to the general public. Hunting would be the dominant use at 450 to 500 visitor days per year, representing a 200 visitor day per year increase. There would be an increase of use estimated to be approximately 50 visitor days over the current level of less than 30 visitor days per year (totalling 80 visitor days per year) for hiking and backpacking. Off-road vehicle use would be precluded except when authorized for special circumstances such as emergencies or approved grazing management activities.

No forest management, grazing management, wildlife management, or minerals management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Hunting use would increase from about 450 to 500 visitor days per year and hiking/backpacking to about 80 visitor days per year due to acquisition of a right-of-way that would allow legal public access. Off-road vehicle use would be prohibited (none is known to occur). Primitive recreation opportunities within the WSA would remain unchanged.

Impacts on Water Quality

No surface-disturbing activities would occur. While grazing would continue at present levels, no vegetative manipulation would occur. Therefore, there would be no change from present conditions since no surface-disturbing activities are now occurring under BLM's Interim Management Policy. There would be no change in water quality. Present trends and conditions of about 0.2 ton per acre per year of sediment yield would continue. The salt load of about 100 tons per year from the WSA would also continue.

Conclusion

Since no surface disturbing activities would occur under the proposed action, there would be no change or impact to water quality.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, habitat would be maintained in present conditions for the current levels of 350 deer, 40 elk, or 4 pair of eagles utilizing the area. There would be no surface disturbance or other habitat altering activities. Even though the increase in visitor use from current levels of 250 to 450 visitor days per year is a large percentage, it is considered insufficient to substantially alter animal populations in Data Analysis Unit D-7 (see Map 3-15). This is because the use would be of low density and dispersed. Individual animals that may be disturbed would be displaced into nearby cover. The largest gain in recreation use is associated with deer hunting, which is normally confined to a four-week period in October and November. Increased hunter use on the WSA would be expected to increase deer harvest by up to 50 animals per year. Doubling hunting pressure in the WSA would also tend to increase the dispersal of deer from the WSA to surrounding areas, while the hunting season is in progress. These effects are consistent with state and federal goals of achieving harvest objectives and providing recreational opportunity to the public. Hunting, within the state's legal hunt structure, would not adversely affect the productive capacity of the herd.

Maintenance of existing range improvements would cause a short-term temporary displacement of animals in the immediate vicinity while people were working. Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because user activity would be low density, dispersed, and generally outside the period of occupation by deer. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Deer, elk, and golden eagle habitat and numbers would remain unchanged. No forest, wildlife, or minerals management activities would occur; therefore, no associated impacts would result.

Conclusion

Habitat would be maintained in present conditions. Animal numbers of 350 deer, 40 elk, and 4 pair of golden eagles utilizing the area would remain unchanged.

Impacts on Mineral Exploration and Production

All lands within the WSA would be closed to mineral leasing and entry. No producible oil and gas or other mineral resources are known or are anticipated in the WSA. With or without wilderness designation, no oil and gas development is anticipated. Therefore, there would be no impact on the development of mineral resources from wilderness designation.

Conclusion

There would be no impacts on producible mineral resources from wilderness designation since none are known to exist. No additional subsurface geologic data would be gained.

Impacts on Private Land

Under this alternative, no changes in use or ownership would occur on the 320-acre private inholding. Wilderness quality or manageability would not be enhanced by the acquisition of this parcel because the imprint of man is substantially noticeable. Imprints include at least two buildings and maintained roads. The landowner would be free to develop the land in any manner consistent with applicable law.

BLM would seek to acquire a right-of-way across private land on existing roads that would allow public vehicle access up to the boundary of the WSA (see Map 2-29). The actual location of the right-of-way has not been determined. Upon designation, BLM would pursue acquisition based on a route analysis.

Conclusion

No change in use or ownership on private lands would occur under this alternative. BLM would seek to acquire an easement to provide public access to the area.

OIL SPRING MOUNTAIN WILDERNESS STUDY AREA - ENVIRONMENTAL CONSEQUENCES

OIL SPRING MOUNTAIN WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION AND NO ACTION)

Impacts on Wilderness Values

Naturalness, opportunities for solitude, and primitive unconfined recreation would be lost under this alternative due to the impairing nature of proposed activities. Oil and gas exploration and development could directly impact up to 400 acres through the construction of 95 wells and associated roads and pipelines (see Map 2-33). The probable location of the oil and gas activity would be scattered throughout the 17,740 acre WSA making it difficult, if not impossible, to find solitude.

Proposed range improvement projects (see Map 2-31), consisting of five new stock ponds and one-half mile of stock trail, would also detract from naturalness. These projects, combined with those for oil and gas development, would cause the loss of naturalness and opportunities for primitive and unconfined recreation. Off-road vehicle use would increase to about 200 visitor days per year, further impacting wilderness values.

No forest management or wildlife management projects are proposed under this alternative and thus would have no impact on wilderness values.

Conclusion

The wilderness values of naturalness, solitude, and primitive and unconfined recreation would be lost over the entire 17,740 acre WSA due to oil and gas development, range improvement projects, and increased recreational off-road vehicle use.

Impacts on Ranching Operations

Production of livestock forage under this alternative would remain at the current level of 780 AUMs. Proposed range improvement projects (see Map 2-31) designated to improve cattle distribution consist of five stock watering ponds and one-half mile of constructed cattle trail. Maintenance of existing range improvements (five improved springs with dugout pits and seven earthen stock ponds) could be accomplished with the use of motor vehicles (see Map 2-32).

Recreational vehicle use would increase to about 200 visitor days per year which is not expected to impact the ranching operation. Expected mineral development under this alternative would remove 400 acres from forage thereby reducing potential AUMs by about two percent. Cattle distribution would also be impacted due to the numerous roads constructed under this alternative.

No forest management or wildlife management proposals have been made under this alternative that would impact ranching operations.

Conclusion

No change in use of the current level of 780 AUMs would occur under this alternative. However, up to 40 AUMs of the available forage potential could be lost due to oil and gas development activities affecting 400 acres of surface.

Impacts on Recreation Use and Quality

Nonmotorized forms of recreation (primarily hunting) would remain at about 450 visitor days per year. Motorized forms of recreation associated with hunting would increase from the current estimated 100 visitor days to about 200 visitor days per year. Total recreational use under this alternative would be about 650 visitor days per year. Activities associated with oil and gas exploration and development and range improvements would substantially reduce the opportunities for primitive and unconfined recreation on the WSA. As many as 95 oil and gas wells could be drilled on the WSA under this alternative. This activity, coupled with the construction of five livestock watering ponds and the projected increase of off-road vehicle use, would make almost all of the WSA unsuitable for primitive and unconfined types of recreation.

No forest management or wildlife management activities are proposed that would impact either recreation use or quality.

Conclusion

Nonmotorized recreation use would remain at 450 visitor days per year. Motorized use associated with hunting would increase to 200 visitor days per year. Use would total about 650 visitor days per year. Opportunities for primitive and unconfined recreation would be lost over the entire WSA as a result of development activities.

Impacts on Water Quality

The 400 acres of oil and gas roads, pads, and other related surface disturbance could result in an average increase in sediment yield and resulting salt production of up to 200 percent in the area where the activities take place. This would total about 1.2 tons per acre per year on the disturbed area and about 220 tons for the WSA. This is an increase in sediment yield and salt production from the WSA of about four percent that would last for the life of the oil and gas field. The increase in sediment yield and salt production would be an immeasurably small contribution to the White River (the nearest perennial stream and the watershed in which the WSA lies). This is well within the natural variation of about 25 percent.

No other surface-disturbing activities such as prescribed burning or forest management activities are anticipated.

Conclusion

Up to a four percent increase in sediment yield and contribution of salts from the WSA could result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of up to 25 percent per year.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, loss of deer and elk habitat would occur. Up to 95 oil and gas wells would be spaced at about 4 wells per section. The adverse influence of roads and other activity is dependent on the additive factors of intensity of use, layout, and spacing. The highest impact from roads would occur within 0.25 to 0.50 miles on either side of a road (Thomas, 1979). Within this area, forage, cover, and available water would not be fully used and some decline in use would occur. Adapting work done by others (Perry and Overly, 1977, and Thomas, 1979) an estimate of impacts can be obtained. The average density of oil and gas roads in the WSA is about 1.6 miles of roads per square mile. This is based on the development scenarios presented. Up to 4 drilling rigs may be working in the WSA at a given time. The construction of roads and drilling operations would occur slowly over several years. The impacts presented here are based on the maximum total disturbance and would take several years to fully develop. Activities would result in up to a 20 percent decrease in summer habitat use within the WSA by deer and elk and up to a 50 percent decrease in use on winter range. Use on winter range is expected to receive a greater impact, because animals would already be under stress from adverse weather conditions, and diminished forage availability.

The potential loss of habitat could be as much as 1.2 percent (about 11.7 square miles) of the usable deer winter range and about 0.3 percent (about 1.1 square miles) of the deer summer range (which is considered critical habitat in Data Analysis Unit D-11 (see Map 3-28)). The potential loss of usable elk habitat could be as much as 2.7 percent (about 11.5 square miles) of the severe winter range in Data Analysis Unit E-10 (see Map 3-30). While the total disturbance would only be about 400 acres or 2 percent of the WSA, up to 44 percent of the deer population in the WSA, or 66 animals, could be displaced along with about 50 percent of the elk (10 animals) in the WSA.

By moving animals off the impacted area, use would be increased on the adjacent habitat. Increased use results in increased competition between animals for available forage. This is compounded by increased human activity and accessibility which results in increased harassment of animals. Forms of harassment include presence of people, vehicles, roads, and illegal activities such as poaching. This results in more animals feeling the effects of disturbance than were originally displaced. While the effects could be felt by as many as 150 deer and 20 elk these animals are not expected to suffer decline or decrease as a result of activities projected under this alternative. Because little of the deer habitat reduction (only 0.3 percent) is critical habitat, and because of the high habitat diversity in the area, only those animals directly affected by disturbance (66 deer and 10 elk) would suffer decline or major displacement.

If golden eagle or other raptor nests are identified in future inventories prior to surface disturbance, they would be protected by avoidance or by the use of seasonal restrictions on activities. Therefore, no impacts to raptors are anticipated.

Maintenance and construction of range improvements would cause a short-term temporary displacement of animals in the immediate vicinity while people were working. The increase in recreational off-road vehicle use of 200 visitor days per year could result in some harassment of animals. Forms of harassment include the presence of people, vehicles, roads, and illegal activities, such as poaching. Because the number of increased visitor days is relatively small, impacts from this source are not anticipated to be measurable.

While black bears can be found in the WSA, wildlife biologists with the Colorado Division of Wildlife (CDOW), after a review of the projected activities under this alternative, indicated that they had no concerns about impacts on black bears. They also indicated that black bears, being very adaptable, should have no problems adjusting to the levels of development projected in this alternative. Because actual surface disturbance would be on a very small percentage of the entire WSA, interaction with human activities is unlikely. Therefore, no impacts to bear populations are anticipated.

Conclusion

There would be a direct decline or displacement of up to 75 of the 150 deer, and 10 of the 19 elk. No impacts to golden eagles, other raptors, or the estimated 5 bears which inhabit the WSA are anticipated.

Impacts on Mineral Exploration and Production

Oil and Gas

All land within the WSA would be available for oil and gas leasing under the No Wilderness Alternative. Gas would be produced from the Mancos Formation with oil and some gas from small traps in the Dakota Formation. Field development would proceed within the WSA at a comparable rate with other underdeveloped areas of the Douglas Creek Arch. An estimated 12.5 billion cubic feet of natural gas could be produced from the WSA.

Other Minerals

Other leasable and locatable mineral resources would be available for leasing and location of mine claims. There are presently no mineral leases other than oil and gas and no mine claims. No mineral development is anticipated.

Conclusion

The WSA (17,740 acres) would be reopened to leasing, exploration, and development. Oil and gas development would proceed at a rate commensurate with new development along the Douglas Creek Arch and could produce 12.5 billion cubic feet of natural gas.

Impacts on Private Land

No changes or impacts to private land use or ownership are anticipated. The WSA is entirely surrounded by federal land with legal public access.

Conclusion

No impact to or change in ownership of private land is anticipated under this alternative.

OIL SPRING MOUNTAIN WSA - BOUNDARY ADJUSTMENT ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for Oil Spring Mountain would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation on about two-thirds of the 18,510 acres in Oil Spring Mountain, although they would only be outstanding on about one-third of the WSA. About one-third of the WSA is leased for oil and gas under pre-FLPMA leases (see Map 3-33 pre-FLPMA leases) and is subject to development. Other activities that would impair wilderness quality such as recreational off-road-vehicle use would be prohibited.

The boundary adjustment would increase the original WSA size by 740 acres, and would improve identification of a portion of the western boundary by following a road rather than a former property line.

Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding an additional Rocky Mountain Forest, mountain mahogany oak scrub ecosystem to the NWPS since this ecosystem is not represented in designated wilderness in western Colorado.

Livestock grazing and management under this alternative would not seriously affect wilderness values. Maintenance of existing range improvements, especially water developments, may require the use of motor vehicles for occasional repair but such use is expected to be extremely limited. Vehicle use would be consistent with BLM's Wilderness Management Policy as discussed in Chapter 1.

Direct and indirect impacts on wilderness values from mineral (oil and gas) exploration and development would seriously impair wilderness qualities on about two-thirds of the WSA that is either held by pre-FLPMA leases or near potential development (see Map 2-36). Up to 51 wells with associated roads and pipelines directly affecting 182 acres can be expected. Sights and sounds from development activities would affect areas adjacent to disturbance. While some opportunities for solitude and primitive unconfined recreation would remain, they would no longer be outstanding. As distance from disturbance is increased topography and vegetation would screen or hide the development. Parts of the WSA not covered by pre-FLPMA leases would be closed to mineral entry and would not be directly impacted by mineral development.

No forest management or wildlife management projects are proposed under this alternative that would impact wilderness values.

Conclusion

Wilderness values of naturalness, outstanding opportunities for solitude, and primitive and unconfined recreation would be lost on up to two-thirds of the 18,510 acre area due to mineral exploration and development. The remainder of the area would be managed to protect these wilderness values.

Impacts on Ranching Operations

Production of livestock forage under this alternative would decrease from the current level of 780 AUMs by about one percent due to impacts of oil and gas exploration and development on pre-FLPMA leases.

Range improvements would generally be limited to existing projects and nonimpairing activities that would benefit the wilderness or range resource and would not require motor vehicle use. This would slightly increase the cost of keeping livestock on the WSA. Motor vehicle use within a designated wilderness area is subject to restriction detailed in BLM's Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981). It is anticipated that limited, sporadic motor vehicle maintenance of some existing livestock watering facilities would be necessary.

Mineral exploration and development would directly impact about 182 acres under this alternative through the construction of well pads, roads, and other facilities. This loss of forage production would reduce the number of AUMs by about eight.

No forest management, recreation management, or wildlife management projects are proposed under this alternative that would impact ranching operations.

Conclusion

Mineral (oil and gas) exploration and development would reduce the amount of available forage by about one percent from the current level of 780 AUMs. Motor vehicle use for maintenance of existing range improvements would be restricted to those projects qualifying under BLM's Wilderness Management Policy.

Impacts on Recreation Use and Quality

Under this alternative, motor vehicle use for recreation would be prohibited on 18,510 acres. There would be a shift of 100 off-road vehicle days from motorized hunting to nonmotorized hunting use. Recreation use is expected to remain at about 550 visitor days per year (mostly hunting) and current ORV use estimated at 100 visitor days would drop to zero. The WSA represents substantially less than one percent of the lands available for ORV use in the Craig District.

Primitive recreation opportunities within the WSA would be lost on about one-third of the WSA, and on another one-third the opportunities would no longer be outstanding due to the impairing activities associated with oil and gas exploration and development on pre-FLPMA leases.

No forest management, grazing management, or wildlife management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Opportunities for primitive recreation would be lost or lessened on up to two-thirds of the area. Use levels are expected to be about 550 visitor days per year. Recreational ORV use would be prohibited.

Impacts on Water Quality

The 182 acres of oil and gas roads, pads, and other related surface disturbance could result in an average increase in sediment yield and resulting salt production of up to 200 percent in the area where the activities take place. This would total about 1.2 tons per acre per year, or about 220 tons for the area. This is an increase in sediment yield and salt production from the WSA of two percent that would last for the life of the oil and gas field.

The increase in sediment yield and salt production would be an immeasurably small contribution to the White River (the nearest perennial stream, and the watershed in which the WSA lies), and is well within the natural variation of about 25 percent.

No other surface-disturbing activities such as prescribed burning or forest management activities are anticipated.

Conclusion

Up to a two percent increase in sediment yield and contribution of salts from the WSA could result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of up to 25 percent per year.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, some loss of deer and elk habitat would occur. Up to 51 oil and gas wells would be spaced at about 4 wells per section. The adverse influence of roads and other activity is dependent on the additive factors of intensity of use, layout, and spacing. The highest impact from roads would occur within 0.25 to 0.50 miles on either side of a road (Thomas, 1979). Within this area, forage, cover, and available water would not be fully used and some decline in use would occur. Adapting work done by others (Perry and Overly, 1977 and Thomas, 1979), an estimate of impacts can be obtained. Oil and gas roads in the portion of the WSA that would be developed would average 1.6 miles of road per square mile based on the development scenarios presented. Up to 2 drilling rigs may be working in the WSA at a given time. The construction of roads and drilling operations would occur slowly over several years. The impacts presented here are based on the maximum total disturbance and would take several years to fully develop. This would result in up to a 20 percent decrease in summer habitat use within the WSA by deer and elk and up to a 50 percent decrease in use on winter range. Winter range is expected to receive a greater impact because animals would already be under stress from adverse weather conditions and diminished forage availability.

The potential loss of habitat could be as much as 0.6 percent (about 5.8 square miles) usable deer winter range and less than 0.1 percent (about 0.4 square miles) of the deer summer range (which is considered critical habitat) in Data Analysis Unit D-11 (see Map 3-28). The potential loss of usable elk habitat could be as much as 1.0 percent (about 4.3 square miles) of the severe winter range in Data Analysis Unit E-10 (see Map 3-30). While the total disturbance would only be about 182 acres or 1 percent of the WSA, up to 22 percent of the deer population in the WSA or 33 animals could be displaced, along with about 25 percent of the elk (5 animals) in the WSA.

By moving animals off the impacted area, use is increased on the remaining habitat. Increased use results in increased competition between animals for available forage. This is compounded by increased human activity and accessibility. This results in more animals feeling the effects of disturbance than were originally displaced. While the effects could be felt by as many as 75 deer and 10 elk these animals are not expected to suffer decline or decrease as a result of activities projected under this alternative. Because not much of the deer habitat reduction (less than 0.1 percent) is critical habitat, and because of the high habitat diversity in the area, only those animals directly affected by disturbance (33 deer and 5 elk) would suffer decline or major displacement.

If golden eagle or other raptor nests are identified in future inventories prior to surface disturbance, they would be protected by avoidance or the use of seasonal restrictions on activities. Because no raptors are known to inhabit the WSA, and if any were found they would be protected, no impacts to raptors are anticipated.

No increase in visitor use of 550 visitor days per year is anticipated, therefore, the presence of hikers or other wilderness users should not alter animal populations or habitat. Deer and elk habitat and populations would remain unchanged.

Maintenance of existing range improvements would cause a short-term temporary displacement of animals in the immediate vicinity while people were working.

Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Animal use would be heaviest from November through April; however, human use would be lightest during those months.

While black bears can be found in the WSA, wildlife biologists with the Colorado Division of Wildlife (CDOW), after a review of the projected activities under this alternative, indicated that they had no concerns about impacts on black bears. They also indicated that black bears, being very adaptable, should have no problems adjusting to the levels of development anticipated in this alternative. Because actual surface disturbance would be a very small percentage of the WSA, interaction with human activities is unlikely. Therefore, no impacts to bear populations are anticipated.

Conclusion

There would be a decline or displacement of up to 33 of the 150 deer and 5 of the 19 elk. No impacts to golden eagles, other raptors, or the estimated 5 bears which occupy the WSA are anticipated.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of the WSA would preclude surface occupancy and subsequent oil and gas development from the areas of the WSA not covered by pre-FLPMA leases (see Map 3-32). The area covered by pre-FLPMA leases would be developed as allowed by law. Development would proceed in accordance with market demands at the same pace as other underdeveloped areas of the Douglas Creek Arch. It is anticipated that as much as 4.5 billion cubic feet of the 12.5 billion natural gas could be produced from the WSA.

Theoretically, development of the post-FLPMA leases within the WSA boundary would be allowed by directional drilling. Directional drilling, however, is not considered effective or reasonable in this instance because of shallow formations, faulting, and technical limitations. Any oil and gas resources outside of pre-FLPMA leases would likely be foregone. This could be about two-thirds of the oil and gas underlying the WSA, based on the pre- and post-FLPMA leases in the WSA.

Other Minerals

The WSA would be closed to leasing of other minerals or mining claims. There are presently no mining claims or other mineral leases on the WSA. No further exploration would be allowed.

Conclusion

The area (18,510 acres) would be closed to further mineral leasing and mining claims. Except for the pre-FLPMA oil and gas leases, no further exploration or development would take place. Development of about two-thirds of the oil and gas resources or 8 billion cubic feet of natural gas would be foregone. About 4.5 billion cubic feet of natural gas would be produced.

Impacts on Private Land

No changes or impacts to private land use or ownership are anticipated. The WSA is entirely surrounded by federal land with legal public access.

Conclusion

No impact to or change in ownership of private land is anticipated under this alternative.

OIL SPRING MOUNTAIN WSA - ALL WILDERNESS ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for Oil Spring Mountain would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation on about two-thirds of the 17,740 acre WSA, although they would only be outstanding on about one-third of the WSA. About one-third of the WSA is leased for oil and gas under pre-FLPMA leases (see Map 3-33 pre-FLPMA leases) and is subject to development. Other activities that would impair wilderness quality such as recreational off-road vehicle use would be prohibited.

Diversity within the National Wilderness Preservation System (NWPS) would be enhanced by adding an additional Rocky Mountain Forest, mountain mahogany oak scrub ecosystem to the NWPS since this ecosystem is not represented in designated wilderness in western Colorado.

Livestock grazing and management under this alternative would not seriously affect wilderness values. Maintenance of existing range improvements, especially water developments, may require the use of motor vehicles for occasional repair but such use is expected to be extremely limited. Vehicle use would be consistent with BLM's Wilderness Management Policy as discussed in Chapter 1.

Direct and indirect impacts on wilderness values from mineral (oil and gas) exploration and development would seriously impair wilderness qualities on about two-thirds of the WSA that is either held by pre-FLPMA leases or near potential development (see Map 2-36). Up to 51 wells with associated roads and pipelines directly affecting 182 acres can be expected. Sights and sounds from development activities would affect areas adjacent to disturbance. While some opportunities for solitude and primitive unconfined recreation would remain, they would no longer be outstanding. As distance from disturbance is increased topography and vegetation would screen or hide the development. Parts of the WSA not covered by pre-FLPMA leases would be closed to mineral entry and would not be directly impacted by mineral development.

No forest management or wildlife management projects are proposed under this alternative that would impact wilderness values.

Conclusion

Wilderness values of naturalness, outstanding opportunities for solitude, and primitive and unconfined recreation would be lost on up to two-thirds of the 17,740 acre WSA due to mineral exploration and development. The remainder of the area would be managed to protect these wilderness values.

Impacts on Ranching Operations

Production of livestock forage under this alternative would decrease from the current level of 780 AUMs by about one percent due to impacts of oil and gas exploration and development on pre-FLPMA leases.

Range improvements would generally be limited to existing projects and nonimpairing activities that would benefit the wilderness or range resources and would not require motor vehicle use. This would slightly increase the cost of keeping livestock on the WSA. Motor vehicle use within a designated wilderness area is subject to restriction detailed in BLM's Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981). It is anticipated that limited, sporadic motor vehicle maintenance of some existing livestock watering facilities would be necessary.

Mineral exploration and development would directly impact about 182 acres under this alternative through the construction of well pads, roads, and other facilities. This loss of forage production would reduce the number of AUMs by about eight.

No forest management, recreation management, or wildlife management projects are proposed under this alternative that would impact ranching operations.

Conclusion

Mineral (oil and gas) exploration and development would reduce the amount of available forage by about one percent from the current level of 780 AUMs. Motor vehicle use for maintenance of existing range improvements would be restricted to those projects qualifying under BLM's Wilderness Management Policy.

Impacts on Recreation Use and Quality

Under this alternative, motor vehicle use for recreation would be prohibited on 17,740 acres. There would be a shift of 100 off-road vehicle days from motorized hunting to nonmotorized hunting use. Recreation use is expected to remain at about 550 visitor days per year (mostly hunting) and current ORV use estimated at 100 visitor days would drop to zero. The WSA represents substantially less than one percent of the lands available for ORV use in the Craig District.

Primitive recreation opportunities within the WSA would be lost on about one-third of the WSA, and on another one-third the opportunities would no longer be outstanding due to the impairing activities associated with oil and gas exploration and development on pre-FLPMA leases.

No forest management, grazing management, or wildlife management activities are anticipated under this alternative that would impact recreational use or quality.

Conclusion

Opportunities for primitive recreation would be lost or lessened on up to two-thirds of the area. Use levels are expected to be about 550 visitor days per year. Recreational ORV use would be prohibited.

Impacts on Water Quality

The 182 acres of oil and gas roads, pads, and other related surface disturbance could result in an average increase in sediment yield and resulting salt production of up to 200 percent in the area where the activities take place. This would total about 1.2 tons per acre per year, or about 220 tons for the area. This is an increase in sediment yield and salt production from the WSA of two percent that would last for the life of the oil and gas field.

The increase in sediment yield and salt production would be an immeasurably small contribution to the White River (the nearest perennial stream, and the watershed in which the WSA lies), and is well within the natural variation in the vicinity of about 25 percent.

No other surface-disturbing activities such as prescribed burning or forest management activities are anticipated.

Conclusion

Up to a two percent increase in sediment yield and contribution of salts from the WSA could result. This would be an immeasurably small contribution to the White River, and is well within the natural variation of up to 25 percent per year.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, some loss of deer and elk habitat would occur. Up to 51 oil and gas wells would be spaced at about 4 wells per section. The adverse influence of roads and other activity is dependent on the additive factors of intensity of use, layout, and spacing. The highest impact from roads would occur within 0.25 to 0.50 miles on either side of a road (Thomas, 1979). Within this area, forage, cover, and available water would not be fully used and some decline in use would occur. Adapting work done by others (Perry and Overly, 1977 and Thomas, 1979), an estimate of impacts can be obtained. Oil and gas roads in the portion of the WSA that would be developed would average 1.6 miles of road per square mile based on the development scenarios presented. Up to 2 drilling rigs may be working in the WSA at a given time. The construction of roads and drilling operations would occur slowly over several years. The impacts presented here are based on the maximum total disturbance and would take several years to fully develop. This would result in up to a 20 percent decrease in summer habitat use within the WSA by deer and elk and up to a 50 percent decrease in use on winter range. Winter range is expected to receive a greater impact because animals would already be under stress from adverse weather conditions and diminished forage availability.

The potential loss of habitat could be as much as 0.6 percent (about 5.8 square miles) usable deer winter range and less than 0.1 percent (about 0.4 square miles) of the deer summer range (which is considered critical habitat) in Data Analysis Unit D-11 (see Map 3-28). The potential loss of usable elk habitat could be as much as 1.0 (about 4.3 square miles) percent of the severe winter range in Data Analysis Unit E-10 (see Map 3-30). While the total disturbance would only be about 182 acres or 1 percent of the WSA, up to 22 percent of the deer population in the WSA (33 animals) could be displaced, along with about 25 percent of the elk (5 animals) in the WSA.

By moving animals off the impacted area, use is increased on the remaining habitat. Increased use results in increased competition between animals for available forage. This is compounded by increased human activity and accessibility. This results in more animals feeling the effects of disturbance than were originally displaced. While the effects could be felt by as many as 75 deer and 10 elk these animals are not expected to suffer decline or decrease as a result of activities projected under this alternative. Because not much of the deer habitat reduction (less than 0.1 percent) is critical habitat, and because of the high habitat diversity in the area, only those animals directly affected by disturbance (33 deer and 5 elk) would suffer decline or major displacement.

If golden eagle or other raptor nests are identified in future inventories prior to surface disturbance, they would be protected by avoidance or the use of seasonal restrictions on activities. Because no raptors are known to inhabit the WSA, and if any were found they would be protected, no impacts to raptors are anticipated.

No increase in visitor use of 550 visitor days per year is anticipated, therefore, the presence of hikers or other wilderness users should not alter animal populations or habitat. Deer and elk habitat and numbers would remain unchanged.

Maintenance of existing range improvements would cause a short-term temporary displacement of animals in the immediate vicinity while people were working. Animal disturbance associated with hikers and other wilderness users is expected to be inconsequential because anticipated user activity would be low density and dispersed. Any human disturbances would tend to temporarily displace individual animals into nearby cover. Animal use would be heaviest from November through April; however, human use would be lightest during those months.

While black bears can be found in the WSA, wildlife biologists with the Colorado Division of Wildlife (CDOW), after a review of the projected activities under this alternative, indicated that they had no concerns about impacts on black bears. They also indicated that black bears, being very adaptable, should have no problems adjusting to the levels of development anticipated in this alternative. Because actual surface disturbance would be a very small percentage of the WSA, interaction with human activities is unlikely. Therefore, no impacts to bear populations are anticipated.

Conclusion

There would be a decline or displacement of up to 33 of the 150 deer and 5 of the 19 elk. No impacts to golden eagles, other raptors, or the estimated 5 bears which occupy the WSA are anticipated.

Impacts on Mineral Exploration and Production

Oil and Gas

Wilderness designation of the WSA would preclude surface occupancy and subsequent oil and gas development from the areas of the WSA not covered by pre-FLPMA leases (see Map 3-32). The area covered by pre-FLPMA leases would be developed as allowed by law. Development would proceed in accordance with market demands at the same pace as other underdeveloped areas of the Douglas Creek Arch. It is anticipated that as much as 4.5 billion cubic feet of the 12.5 billion natural gas could be produced from the WSA.

Theoretically, development of the post-FLPMA leases within the WSA boundary would be allowed by directional drilling. Directional drilling, however, is not considered effective or reasonable in this instance because of shallow formations, faulting, and technical limitations. Any oil and gas resources outside of pre-FLPMA leases would likely be foregone. This could be about two-thirds of the oil and gas underlying the WSA, based on the pre-and post-FLPMA leases in the WSA.

Other Minerals

The WSA would be closed to leasing of other minerals or mining claims. There are presently no mining claims or other mineral leases on the WSA. No further exploration would be allowed.

Conclusion

The area (17,740 acres) would be closed to further mineral leasing and mining claims. Except for the pre-FLPMA oil and gas leases, no further exploration or development would take place. Development of about two-thirds of the oil and gas resource or 8 billion cubic feet of natural gas would be foregone. About 4.5 billion cubic feet of natural gas would be produced.

Impacts on Private Land

No changes or impacts to private land use or ownership are anticipated. The WSA is entirely surrounded by federal land with legal public access.

Conclusion

No impact to or change in ownership of private land is anticipated under this alternative.

TROUBLESOME WILDERNESS STUDY AREA - ENVIRONMENTAL CONSEQUENCES

TROUBLESOME WSA - NO WILDERNESS ALTERNATIVE (PROPOSED ACTION AND NO ACTION)

Impacts on Wilderness Values

Naturalness and opportunities for solitude would be lost over approximately one-third of the WSA due to the impairing nature of proposed activities. Timber harvests, silvicultural treatments, and road construction over approximately 2,000 acres on the west and south sides of the WSA would eliminate naturalness and solitude in the vicinity of the projects. Range improvement projects consisting of burning and mechanical brush treatment would also contribute to a loss of solitude and naturalness in the south and west portions of the WSA. A livestock reservoir in the northeast portion of the WSA would cause a loss in solitude during the actual construction phase.

Unrestricted off-road vehicle use, estimated to increase from less than 10 to 1,000 visitor days per year under this alternative, would affect naturalness and solitude to the point that they would be lost over about one-third of the WSA. No minerals management or wildlife management projects are proposed under this alternative and thus would not impact wilderness values.

Conclusion

Under the No Wilderness Alternative, the wilderness values of solitude and naturalness would be lost on about 2,148 acres through forest management activities, range improvement projects, and off-road vehicle use.

Impacts on Forest Management and Production

Harvest and silvicultural treatments on approximately 363 acres over the next 20 to 30 years within the WSA (see Map 2-28) are anticipated under this alternative. (This represents only the expected harvest area during the next 20 to 30 years.) Future harvests and treatments would be allowed on the 1,872 acres of commercial forest in the WSA. Production of and management for lodgepole pine sawlogs, corral poles, fuelwood, and aspen sawlogs would be the management objective. Silvicultural treatments such as slash disposal, site preparation, commercial and precommercial thinning, and planting would be employed as necessary to meet the objective of producing the desired products. The use of motorized vehicles and the construction of approximately six miles of road would be necessary to access the timber.

No range management, mineral management, recreation management, or wildlife management activities are proposed that would impact the management of the forest resource.

Conclusion

Forest management activities under this alternative would harvest 363 acres and manage approximately 1,872 acres of the WSA for the production of forest products.

Impacts on Ranching Operations

Production of livestock forage under this alternative would increase from a current level of 730 AUMs to 938 AUMs as a result of new range improvement projects (see Map 3-39). The projects include burning 600 acres of brush, mechanically and chemically treating 208 acres of brush, and constructing one stock reservoir. Maintenance of existing range improvements (see Map 2-40) by vehicle would be allowed under this alternative. Harvest and silvicultural treatments on 363 acres of commercial forest land would provide short-term increases in forage during the early successional stages. These increases would be generally unavailable to cattle, however, due to the necessity of preventing cattle from trampling tree seedlings. Off-road vehicle use is expected to increase to about 1,000 visitor days per year but is not expected to impact the ranching operations. No minerals management or wildlife management activities are proposed that would affect the ranching operation.

Conclusion

Livestock forage production under this alternative would increase by 208 AUMs from a current level of 730 AUMs to 938 AUMs.

Impacts on Recreation Use and Quality

Due to the acquisition of public access, total recreation use within the WSA would increase from about 1,750 visitor days per year to about 5,000 visitor days per year. Motorized forms of recreation associated with hunting and fishing would increase from a current level of less than 10 to about 1,000 visitor days per year. Nonmotorized activities such as hunting, fishing, hiking, and camping currently estimated at 1,740 visitor days per year would increase to 4,000 visitor days.

Activities associated with timber management and range improvement projects would substantially degrade the opportunities for primitive recreation over about one-third of the WSA. Unrestricted off-road-vehicle use would further degrade the opportunities for primitive forms of recreation over most of the remainder of the WSA.

No mineral management or wildlife management activities are proposed that would impact recreational use or quality.

Conclusion

Total recreation use would increase from a current level of 1,750 visitor days to approximately 5,000 visitor days per year. Motorized vehicle use associated with hunting and fishing would increase from 10 to 1,000 visitor days per year. This increase, along with proposed forest and range management activities would cause opportunities for primitive types of recreation to be lost over most of the WSA.

Impacts on Water Quality

Under this alternative, the 363 acres of timber harvests, prescribed burning of 600 acres, and the increase of 3,250 visitor days would affect water quality. The timber harvesting activities, primarily roads, could increase sediment yield in the Troublesome and Rabbit Ears Creeks by about two percent. Existing duff and vegetation within the actual cutting areas and the distance to creeks would effectively buffer much of the potential impact. Burning of vegetation could cause a short-term 200 percent increase from the disturbed area raising the sediment contribution from these lands to 0.18 tons per acre for two or three years. This would be about a 1.5 percent increase in sediment yield for the WSA from range improvement projects. This could result in a total increase in sediment yield in the Troublesome and Rabbit Ears Creeks of about 3.5 percent for a two or three year period. There could be a corresponding increase in salts (total dissolved solids) produced from the WSA of about one percent for a two or three year period. Increased sediment yields of about two percent would continue while logging in the WSA was taking place.

Conclusion

There could be short-term (two to three years) increases of up to 3.5 percent in sediment yield, with long-term increases of up to two percent from the WSA. Salt production within the WSA could also increase by about one percent.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative, logging activity on 363 acres and related use of roads could decrease habitat use by about 20 percent on about 2,000 acres. Adapting work done by others (Perry and Overly, 1977, and Thomas, 1979) an estimate of impacts can be obtained. The range projects would also temporarily disturb wildlife during periods of human activity. The proposed burning of 600 acres would set back ecological succession and would result in a greater variety, diversity, and juxtaposition of grasses, forbs, and shrubs.

The increase in visitor use from 1,750 to 5,000 visitor days per year would displace animals into the surrounding areas. Some animals would seek cover in remote portions of the WSA or in the surrounding area. This could result in a decline in use or displacement of an additional 10 percent of the deer and elk using the WSA.

The total displacement of 15 percent of the big game in the WSA would be about 17 deer and 6 elk. Because the disturbance would occur in summer range, which is relatively abundant in the affected Data Analysis Units, no measurable change in animal numbers is expected to occur.

Public access and subsequent increases in fishing pressure could be either beneficial or detrimental depending on intensity. Benefits could occur if some of the high populations of brook trout were reduced to eliminate competition for habitat particularly in Rabbit Ears Creek, too much fishing pressure could eliminate or greatly reduce fish populations to levels below the fisheries' ability to be self-sustaining. However, a decline is not expected because measures to protect the fisheries are anticipated should any problems arise. These measures may include restrictions on number or size of fish taken, type lures or bait used, catch and release, or closing portions of the streams to fishing.

The range improvement projects and timber harvesting are not expected to affect fisheries in either of the creeks.

Golden eagle and other raptor nests would be protected if found within the WSA.

Conclusion

Up to 17 of the 115 deer and 6 of the 40 elk presently using the WSA would be displaced. No impacts to fisheries are anticipated. There would be no impacts to golden eagles or other raptors.

Impacts on Mineral Exploration and Production

The No Wilderness Alternative would keep all the federal mineral estate of the WSA open to mineral leasing and mining. Relocation of uranium mining claims, or locations of other mineral claims could occur. There is little likelihood of any mineral development.

Conclusion

The WSA (8,250 acres) would be open to leasing and mining claims, but due to the low interest in known mineral resources within the WSA, no development is anticipated.

Impacts on Private Land

Under this alternative, no changes in use or ownership would occur on the 625 acre private inholding. The landowner would be free to develop the land in any manner consistent with applicable law.

BLM would seek to acquire a right-of-way or easement across existing roads to provide public road access to the area. The actual location of the road has not yet been determined, but is not expected to affect the private inholding.

Conclusion

No impact or change in ownership of 625 acres of private land within the WSA is anticipated.

TROUBLESOME WSA - PARTIAL WILDERNESS ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, 6,102 acres of the WSA would be recommended for wilderness designation and would receive long-term protection for naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation. Activities which may impair the scenic qualities of the area would be prohibited.

The area deleted from wilderness designation under this alternative would be subject to approximately 363 acres (during the next 20 to 30 years) of timber harvest (see Map 2-38) and silvicultural activities and approximately 800 acres of vegetative manipulation for range improvements. This would eliminate opportunities for naturalness, solitude and primitive and unconfined recreation on about one-third of the WSA. Off-road vehicle use in the area would also contribute to this loss.

The addition of a portion of the Troublesome WSA to the National Wilderness Preservation System (NWPS) would increase the amount of Rocky Mountain Forest, spruce-fir ecosystem in the NWPS. Because of other wilderness areas in the vicinity with this ecosystem, diversity and distribution would not be enhanced.

No minerals management or wildlife management activities are anticipated that would affect either the area recommended for wilderness or the area deleted.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 6,102 acres under this alternative. These wilderness values would be lost on 2,148 acres of the original WSA.

Impacts on Forest Management and Production

Harvest and silvicultural treatments on approximately 363 acres over the next 20 to 30 years within the WSA (see Map 2-39) are anticipated under this alternative. (This represents only the expected harvest area during the next 20 to 30 years.) Future harvests and treatments would be allowed on the 1,872 acres of commercial forest in the WSA. Production of and management for lodgepole pine sawlogs, corral poles, fuelwood, and aspen sawlogs would be the management objective. Silvicultural treatments such as slash disposal, site preparation, commercial and precommercial thinning, and planting would be employed as necessary to meet the objective of producing the desired products. The use of motorized vehicles and the construction of approximately six miles of road would be necessary to access the timber. Approximately 6,102 acres recommended for designation as wilderness would be closed to the harvest and sale of, and management for, forest products.

No range management, mineral management, recreation management, or wildlife management activities are proposed that would impact the management of the forest resource.

Conclusion

Forest management activities would harvest 363 acres and manage approximately 1,872 acres of the WSA for the production of forest products. Forest management activities would be precluded on 6,102 acres.

Impacts on Ranching Operations

Under this alternative, livestock forage production on grazing allotments within the proposed Troublesome wilderness area would continue at current levels. Range improvements would generally be limited to existing projects and nonimpairing activities that would benefit the wilderness or range resource and would not require motor vehicle use. Motor vehicle use within a designated wilderness area is subject to restrictions detailed in BLM Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981).

The area deleted from wilderness recommendation under this alternative would not be subject to restrictions on motor vehicle use or construction of new range improvements. Proposed range improvement projects (see Map 2-39) include 600 acres of brush burning and 200 acres of mechanical and chemical vegetation treatment and constructing one stock reservoir. The result of these range projects would be an increase of 200 AUMs of available forage in the deleted area. Harvest and silvicultural treatments on 363 acres of commercial forest land would provide short-term increases in forage during the early successional stages. These increases would generally be unavailable to cattle, however, due to the necessity of preventing cattle from trampling tree seedlings. Off-road vehicle use is expected to increase to about 1,000 visitor days per year, but is not expected to impact the ranching operation.

No forest management, minerals management. recreation management, or wildlife management proposals have been made that would impact ranching operations under this alternative.

Conclusion

Livestock forage production within the proposed wilderness area would remain at current levels. Vehicle use for maintenance of improvements would be subject to the restrictions of BLM's Wilderness Management

Policy (USDI, BLM, 1981). The area not proposed for wilderness would increase forage production by 200 AUMs as a result of new range improvement projects.

Impacts on Recreation Use and Quality

Due to the acquisition of public access, recreation use within the proposed wilderness area would increase from a current level of 1,750 visitor days to about 6,000 visitor days per year, Motorized vehicle use would be precluded and opportunities for primitive and unconfined recreation would remain unchanged on 6,102 acres. The types of recreation activities available would continue to be primarily hunting, fishing, and hiking.

The area outside the proposed wilderness (2,148 acres) would be opened to motorized vehicles associated primarily with hunting and fishing and development activities associated with timber harvesting and range improvements. Motorized forms of recreation are anticipated to increase from current levels of less than 10 per year to about 1,000 visitor days per year. It is expected that these activities would eliminate opportunities for primitive and unconfined types of recreation to almost nil within the area outside the proposed wilderness. Recreation use within the present WSA boundary would total 7,000 visitor days per year.

Conclusion

Recreation use levels would increase from a current level of 1,750 visitor days per year to 6,000 visitor days per year on the area recommended suitable. Motor vehicle use within this area would be prohibited and opportunities for primitive and unconfined recreation would remain unchanged. Motorized vehicle use associated with hunting and fishing would increase to 1,000 visitor days per year outside of the proposed wilderness. The area outside the proposed wilderness would lose opportunities for primitive recreation due to development of other resources and an increase of motorized traffic.

Impacts on Water Quality

Under this alternative, the 363 acres of timber harvests, prescribed burning of 600 acres, and the increase to 7,000 visitor days would affect water quality. Timber harvesting activities, primarily roads, could increase sediment yield in the Troublesome and Rabbit Ears Creeks by about two percent. Existing duff and vegetation within the actual cutting areas and the distance to creeks would effectively buffer much of the potential impact. Burning of vegetation could cause a short-term 200 percent increase from the disturbed area raising the sediment contribution from these lands to 0.18 tons per acre for two or three years. This would be about 1.5 percent increase in sediment yield for the WSA from range improvement projects. This could result in a total increase in sediment yield in the Troublesome and Rabbit Ears creeks of about 3.5 percent for a two or three year period. There could be a corresponding increase in salts (total dissolved solids) produced from the WSA of about one percent for a two or three year period. Increased sediment yields of about two percent would continue while logging in the WSA was taking place. Because about three-fourths of the timber sales and range improvement projects are downstream from the proposed wilderness area, any changes in water quality in the wilderness would be less than one percent.

Conclusion

There could be short-term (two or three years) increases of up to 3.5 percent in sediment yield, with a long-term increase of up to two percent from the WSA. Salt production within the WSA could also increase by about one percent.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Under this alternative deer and elk use of the WSA could be diminished by up to 25 percent. Logging activity on 363 acres and related use of roads could decrease habitat use by about 20 percent on about 2,000 acres. Adapting work done by others (Perry and Overly, 1977, and Thomas, 1979), an estimate can be obtained. The range projects would also temporarily disturb wildlife during periods of human activity. The proposed burning of 600 acres would set back ecological succession, and would result in a greater variety, diversity, and juxtaposition of grasses, forbs, and shrubs.

The increase in visitor use from 1,750 to 7,000 visitor days per year would displace animals into the surrounding areas. Some animals would seek cover in remote portions of the WSA or in the surrounding area. This could result in a decline in use or displacement of an additional 10 percent of the deer and elk using the WSA.

The total displacement of 15 percent of the big game in the WSA would be about 17 deer and 6 elk. Because the disturbance would occur in summer range, which is relatively abundant in the affected Data Analysis Units, no measurable change in animal numbers is expected to occur.

Public access and subsequent increases in fishing pressure could be either beneficial or detrimental depending on intensity. Benefits could occur if some of the high populations of brook trout were reduced to eliminate competition for habitat particularly in Rabbit Ears Creek. Too much fishing pressure could eliminate or greatly reduce fish populations to levels below the fisheries' ability to be self-sustaining. However, a decline is not expected because measures to protect the fisheries are anticipated should any problems arise. These measures may include restrictions on number or size of fish taken, type of lures or bait used, catch and release, or closing portions of the streams to fishing. The range improvement projects and timber harvesting are not expected to affect fisheries in either of the creeks.

Golden eagle and other raptor nests would be protected if found within the WSA.

Conclusion

Up to 17 of the 115 deer and 6 of the 40 elk presently using the WSA would be displaced. No impacts to fisheries are anticipated. There would be no impacts to golden eagles or other raptors.

Impacts on Mineral Exploration and Production

The Partial Wilderness Alternative would reopen 2,148 acres to mineral leasing and mining claims. The remainder of the WSA would be closed to leasing and claims. Relocation of uranium mining claims or location of other mineral mining claims could occur. There are currently no pre-FLPMA leases or mining claims on the WSA.

Conclusion

The 2,148 acres of the excluded portion of the WSA would be reopened to leasing and mining claims. The portion of the WSA to be retained as wilderness (6,102 acres) would be closed to all mineral entry. No development on either portion is anticipated, due to the low interest in known mineral resources.

Impacts on Private Land

Under this alternative, no changes in use or ownership would occur on the 625 acre private inholding. The landowners would be free to develop the land in any manner consistent with applicable law.

The BLM would seek to acquire a right-of-way or easement on existing roads to provide road access to the area. The actual location of the road has not yet been determined, but is not expected to affect the private inholding.

Conclusion

No impact or change in ownership of 625 acres of private land within the WSA is anticipated.

TROUBLESOME WSA - ALL WILDERNESS ALTERNATIVE

Impacts on Wilderness Values

Under this alternative, wilderness designation for Troublesome would give long-term protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation on the entire 8,250 acres of the WSA.

Activities which may impair the scenic quality of the area would generally be prohibited.

Livestock grazing and management under this alternative would not affect wilderness values. Maintenance of existing range improvements by motorized vehicles would generally be prohibited. This would slightly increase the cost of keeping livestock in the WSA. However, if reasonable alternatives to motor vehicle use do not exist, they could be used. It is anticipated that the existing livestock reservoirs would require occasional maintenance by motor vehicle. The short duration and sporadic nature of vehicle use is not expected to seriously impact wilderness values.

Forest management activities and motorized recreation would be prohibited under this alternative. Naturalness would be enhanced since existing ways and trails would rehabilitate to a substantially unnoticeable condition and no new trails would be created.

The addition of the Troublesome WSA to the National Wilderness Preservation System (NWPS) would increase the amount of Rocky Mountain Forest, spruce fir forest ecosystem in the NWPS. Because of other wilderness areas in the vicinity with this ecosystem, diversity and distribution would not be enhanced.

Impacts on wilderness values from mineral exploration and development would be nonexistent since no pre-FLPMA leases or mining claims exist on the area. No wildlife management activities are proposed under this alternative and thus would have no impact on wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on the entire 8,250 acre WSA.

Impacts on Forest Management and Production

Under this alternative, forest management activities such as timber harvesting and silvicultural treatments would not occur on the 8,250 acres in the WSA. Intensive forest management would conflict with the protection of wilderness values and thus would be prohibited. The potential sustained yield of 150 thousand board feet per year is about 0.075 percent of all the timber harvested in the Kremmling Resource Area (including land administered by the U.S. Forest Service). Because this percentage is very small, no noticeable effect on timber harvests in the vicinity of Kremmling is anticipated.

Conclusion

No forest management activities would take place in the 8,250 acre WSA under this alternative.

Impacts on Ranching Operations

Under the All Wilderness Alternative, livestock forage production on grazing allotments within the Troublesome WSA would remain at 730 AUMs per year. New range improvements would be limited to nonimpairing activities that would benefit the wilderness or range resource and not require motor vehicle use.

The livestock operator may be inconvenienced by restrictions on motor vehicle use for maintenance, which could result in an increase in the cost of keeping cattle on the WSA. Existing range improvement such as stock reservoirs may require maintenance by motor vehicle, but such maintenance would be subject to BLM's Wilderness Management Policy. Occasional use of motor vehicles or mechanized equipment may be permitted "where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation" (USDI, BLM, 1981).

No forest management, wildlife management, minerals management, or recreational management proposals have been made that would impact ranching operations under this alternative.

Conclusion

Livestock forage production would remain at the current level of 730 AUMs. Motor vehicle use restrictions for range project maintenance would slightly increase the cost of keeping cattle on the WSA, although the use of motorized equipment may be allowed under specific conditions for individual projects.

Impacts on Recreation Use and Quality

Primitive recreation opportunities within the WSA would remain unchanged. Nonmotorized forms of recreation such as hunting, fishing, and hiking would be the predominant uses. These uses are expected to increase from a current level of 1,740 visitor days to about 6,000 visitor days per year. Motorized forms of recreation would be prohibited. Use levels are expected to increase due to the acquisition of an easement to allow access to the general public. Recreational vehicle use would be prohibited.

No forest management, grazing management, wildlife management, or minerals management proposals have been made under this alternative that would impact recreational use or quality.

Conclusion

Primitive recreation opportunities would remain unchanged. Nonmotorized forms of recreation would increase from a current level of 1,740 visitor days per year to about 6,000 visitor days per year. Motorized vehicle use would be prohibited.

Impacts on Water Quality

Under this alternative, no impacts or changes in water quality are anticipated because no surface-disturbing activities would occur.

Conclusion

Sediment yield and salt production from the WSA would remain unchanged.

Impacts on Big Game Species (Populations and Habitat) and Eagles

The increase in visitor use from 1,750 to 6,000 visitor days per year would displace some animals into the surrounding areas or remote portions of the WSA. This could result in a decline in use or displacement of up to 10 percent of the deer and elk using the WSA. This would be about 11 deer and 4 elk. Because the disturbance would occur in summer range, which is relatively abundant in the affected Data Analysis Units, no measurable change in animal numbers is expected to occur.

Public access and subsequent increases in fishing pressure could be either beneficial or detrimental depending on intensity. Benefits could occur if some of the high populations of brook trout were reduced to eliminate competition for habitat particularly in Rabbit Ears Creek. Too much fishing pressure could eliminate or greatly reduce fish populations to levels below the fisheries' ability to be self-sustaining. However, a decline is not expected because measures to protect the fisheries are anticipated should any problems arise. These measures may include restrictions on number or size of fish taken, type of lures or bait used, catch and release, or closing portions of the streams to fishing.

Golden eagle and other raptor nests would be protected if found within the WSA.

Conclusion

Up to 11 of the 115 deer and 4 of the 40 elk presently using the WSA would be displaced. No impacts to fisheries are anticipated. There would be no impacts to golden eagles or other raptors.

Impacts on Mineral Exploration and Production

The All Wilderness Alternative would close the WSA to all mineral leasing and mining claims. There are currently no pre-FLPMA leases or mining claims and no other pre-existing mineral rights. Since the previous uranium claims on the WSA were allowed to lapse, and there is low interest in the uranium market, mineral development is anticipated to be foregone.

Conclusion

The WSA (8,250 acres) would be closed to mining claims and mineral leasing, but no development is anticipated without wilderness designation because of the low interest in known mineral resources. Therefore, no impact to mineral development is likely to occur.

Impacts on Private Land

Under this alternative, no changes in use or ownership would occur on the 625 acre ,private inholding. The landowners would be free to develop the land in the manner consistent with applicable law.

Conclusion

No impact or change in ownership of 625 acres of private land within the WSA is anticipated.

PLATTE RIVER CONTIGUOUS WILDERNESS STUDY AREA - ENVIRONMENTAL CONSEQUENCES

PLATTE RIVER CONTIGUOUS WSA - ALL WILDERNESS ALTERNATIVE (PROPOSED ACTION)

Impacts on Wilderness Values

Under this alternative, wilderness designation for the Platte River Contiguous WSA would give long-term legislative protection to naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation. This protection would enhance the management of wilderness values including the scenic quality and the primitive nonmotorized setting. Although none are anticipated, activities on the 30 acres which may impair the scenic quality of North Gate Canyon would be legislatively prohibited. This would protect these 30 acres of the viewshed of the contiguous Platte River Wilderness.

Livestock grazing and management under this alternative would not affect wilderness values.

Motorized recreation would be prohibited under this alternative, maintaining naturalness and opportunities for primitive and unconfined recreation (although no known motorized use occurs on the 30 acre WSA due to the steep and rugged landscape and limited public access).

Impacts on wilderness values from mineral (oil and gas) exploration and development on the WSA would be nonexistent since there are no pre-FLPMA leases on the WSA, and no mineral development is anticipated.

No forest management activities are proposed under this alternative and thus would have no deleterious impacts upon wilderness values.

Conclusion

Opportunities for solitude, and primitive unconfined recreation and the naturalness of the area would be protected on 30 acres under the All Wilderness Alternative. This would also provide legislative protection on these 30 acres of the viewshed of the contiguous Platte River Wilderness Area.

Impacts on Ranching Operations

Under the All Wilderness Alternative, livestock production on the grazing allotment within the Platte River Contiguous WSA would not be changed since there are no AUMs on the 30 acre WSA.

Motorized vehicle use within a designated wilderness area is subject to restriction detailed in BLM's Wilderness Management Policy, however due to the rugged and rocky landscape of the 30 acre WSA, use would not be possible.

There would be no impact to ranching operations.

Conclusion

Due to the absence of forage, livestock forage production within the Platte River Contiguous WSA would be unaffected.

Impacts on Recreation Use and Quality

Under the All Wilderness Alternative, recreation use would remain the same (10 visitor days per year) due to limited access through private lands.

The 30 acres of the viewshed of the contiguous USDA Forest Service Platte River Wilderness would be legislatively protected. Since no off-road vehicle opportunities exist in the WSA, none would be lost. Primitive recreation opportunities within the WSA and views from the Platte River Wilderness would remain unchanged. No other resource management activities would impact recreation use or quality.

Conclusion

Recreational use levels are expected to remain at current levels of 10 visitor days per year.

Impacts on Water Quality

No surface disturbing impacts would occur, and there are no known sources of water. No impacts to water quality would occur under this alternative.

Conclusion

No impacts to water quality would occur under this alternative.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Due to the small size (30 acres) of the WSA, no impacts under this alternative to big game or other wildlife species are anticipated. This alternative would maintain all species of wildlife habitat in its present condition.

Conclusion

No wildlife species will be impacted under this alternative.

Impacts on Mineral Exploration and Production

The All Wilderness Alternative would close the WSA to all mineral leasing and mining claims. There are currently no pre-FLPMA leases or mining claims and no other pre-existing mineral rights.

Conclusion

Since there is no current interest in any mineral resources in the WSA, no minerals development is anticipated to be foregone.

Impacts on Private Land

There are no private or state lands within the WSA, and no impacts are anticipated. The Platte River Contiguous WSA is adjacent to the 23,000 acre USDA Forest Service Platte River Wilderness on the east, and the private lands on the north. No impacts are anticipated since the 30 acre WSA is contained within the North Gate Canyon and does not include private or state lands.

Conclusion

No impacts to private or state lands are anticipated under this alternative.

PLATTE RIVER CONTIGUOUS WSA - NO WILDERNESS ALTERNATIVE (NO ACTION)

Impacts on Wilderness Values

Under this alternative, wilderness values would be administratively protected on 30 acres. This protection would enhance the management of wilderness values including the naturalness, opportunities for solitude, opportunities for primitive unconfined recreation, the scenic quality, and the primitive nonmotorized setting. Although none are anticipated, activities on the 30 acres which may impair the scenic quality of North Gate Canyon would be administratively prohibited. This would protect these 30 acres of the viewshed of the contiguous Platte River Wilderness.

Livestock grazing and management under this alternative would not affect wilderness values.

Motorized recreation would not be prohibited under this alternative, although no known motorized use occurs on the 30 acre WSA due to the steep and rugged landscape and limited public access.

Impacts on wilderness values from mineral (oil and gas) exploration and development on the WSA would be nonexistent since there are no pre-FLPMA leases on the WSA, and no mineral development is anticipated.

No forest management activities are proposed under this alternative and thus would have no impacts upon wilderness values.

Conclusion

Opportunities for solitude, primitive unconfined recreation and the naturalness of the area would be protected on 30 acres under the No Wilderness Alternative. This would also provide administrative protection on these 30 acres of the viewshed of the contiguous Platte River Wilderness Area.

Impacts on Ranching Operations

Under the No Wilderness Alternative, livestock production on the grazing allotment within the Platte River Contiguous WSA would not be changed since there are no AUMs on the 30 acre WSA.

Motorized vehicle use would be restricted to present uses, however due to the rugged and rocky landscape of the 30 acre WSA, use would not be possible.

There would be no impact to ranching operations.

Conclusion

Due to the absence of forage, livestock forage production within the Platter River Contiguous WSA would be unaffected.

Impacts on Recreation Use and Quality

Under the No Wilderness Alternative, recreation use would remain the same (10 visitor days per year) due to limited access through private lands.

These 30 acres of the viewshed of the contiguous USDA Forest Service Platte River Wilderness would be administratively protected. Since no off-road vehicle opportunities exist in the WSA, none would be lost. Primitive recreation opportunities within the WSA and views from the Platte River Wilderness would remain unchanged. No other resource management activities would impact recreation use or quality.

Conclusion

Recreational use levels are expected to remain at current levels of 10 visitor days per year.

Impacts on Water Quality

No surface disturbing impacts would occur, and there are no known sources of water. No impacts to water quality would occur under this alternative.

Conclusion

No impacts to water quality would occur under this alternative.

Impacts on Big Game Species (Populations and Habitat) and Eagles

Due to the small size (30 acres) of the WSA, no impacts under this alternative to big game or other wildlife species are anticipated. This alternative would maintain all species of wildlife habitat in its present condition.

Conclusion

No wildlife species will be impacted under this alternative.

Impacts on Mineral Exploration and Production

The WSA would be open for mineral leasing and mining claims. There are currently no pre-FLPMA leases or mining claims and no other pre-existing mineral rights.

Conclusion

Since there is no current interest in any mineral resources in the WSA, no minerals development is anticipated.

Impacts on Private Land

There are no private or state lands within the WSA, and no impacts are anticipated. The Platte River Contiguous WSA is adjacent to the 23,000 acre USDA Forest Service Platte River Wilderness on the east, and the private lands on the north. No impacts are anticipated since the 30 acre WSA is contained within the North Gate Canyon and does not include private or state lands.

Conclusion

No impacts to private or state lands are anticipated under this alternative.

CHAPTER 5

CONSULTATION AND COORDINATION

INTRODUCTION

Throughout the course of preparing this Draft Wilderness Environmental Impact Statement (EIS) formal and informal efforts have been made to involve the public, other federal agencies, state and local government agencies, special interest groups, and numerous individuals. Public input, which is required by law, has been sought at various stages of the process. Comments on this Draft EIS have been requested from various Federal, State and local agencies and organizations.

PUBLIC PARTICIPATION

The planning process began with identification of issues and public concerns. Public meetings were held for issue identification (scoping) in Denver, Grand Junction, Hot Sulphur Springs, Kremmling, Meeker, and Craig, Colorado. A public comment period was initiated to allow all interested parties to submit written comments (see the discussion on the Scoping Process in Chapter 1).

Publication of the Draft Craig District Wilderness EIS begins another phase of critical public involvement. Public hearings will be conducted, and comments on the draft wilderness study will be considered and incorporated into the Final Craig District Wilderness EIS.

CONSISTENCY WITH OTHER PLANS

None of the proposed alternatives are known to conflict with the objectives of other federal, regional, state or local land use plans, policies or controls for the areas involved.

REVIEW OF THE DRAFT

The Draft Craig District Wilderness EIS has been mailed to those agencies, organizations, companies, and individuals that have expressed an interest in this EIS effort. Table 5-1 contains a listing of government agencies that have received this document. Members of federal and state congressional delegations, state, county, and local officials, Craig BLM District Advisory Council, Craig BLM District Grazing Advisory Board, media, schools, and libraries, and numerous organizations and individuals have received this document, as well.

RELATIONSHIP TO OTHER DOCUMENTS

This document was prepared within the context of the BLM wilderness inventory, completed in 1980, and various management framework plans. The associated documents are described below and are referenced in the text.

Wilderness Inventory Handbook - September 27, 1978. U.S. Department of the Interior, Bureau of Land Management. This handbook contains the policy, direction, procedures, and guidance for conducting wilderness inventory on the public lands.

Interim Management Policy and Guidelines for Lands Under Wilderness Review - November 11, 1987. U.S. Department of the Interior, Bureau of Land Management. The Interim Management Policy describes the temporary management of wilderness study areas and applies only during the time an area is under wilderness review and until Congress acts on wilderness study areas.

BLM: Initial Wilderness Inventory - Final - August 1979. In this report public lands administered by BLM, which clearly and obviously do not have wilderness characteristics, are identified. Existing information, such as maps and aerial photos and input received from the public were utilized to determine whether areas possessed wilderness characteristics. Three criteria had to be met during this stage for an area to be recommended for intensive inventory. Each area had to be (1) at least 5,000 acres in size or contiguous go a proposed or existing wilderness area, (2) roadless, and (3) substantially free of human imprints.

BLM: Intensive Wilderness Inventory - Proposed Wilderness Study Areas - February 1980. This report documents the intensive inventory. In Colorado, field surveys were conducted, and areas were examined for wilderness qualities listed in the Wilderness Act: opportunities for solitude or primitive and unconfined recreation, naturalness, and the presence of supplemental values. Areas having these characteristics were identified as proposed wilderness study areas (WSAs).

TABLE 5-1
GOVERNMENT AGENCIES RECEIVING DRAFT CRAIG DISTRICT WILDERNESS EIS

Federal Agencies

- Advisory Council on Historic Preservation
- Environmental Protection Agency
- Federal Energy Regulatory Commission
- Small Business Administration
- U.S. Department of Agriculture
  - Agriculture Stabilization & Conservation Service
  - Forest Service
  - Soil Conservation Service
- U.S. Department of Commerce
- U.S. Department of Defense
  - Air Force
  - Army Corps of Engineers
- U.S. Department of Energy
  - Western Area Power Administration
- U.S. Department of Housing and Urban Development
- U.S. Department of the Interior
  - Bureau of Indian Affairs
  - Bureau of Mines
  - Bureau of Reclamation
  - Fish & Wildlife Service
  - Geology Survey
  - Minerals Management Service (Offshore)
  - National Park Service
  - Office of Environmental Project Review — Regional Environmental Officer
  - Office of Surface Reclamation and Enforcement
- U.S. Department of Transportation
  - Federal Highway Administration

State Agencies

- Colorado Commerce and Development Division
- Colorado Department of Health
- Colorado Department of Highways
- Colorado Department of Labor & Employment
- Colorado Department of Natural Resources
- Colorado Division of Mines
- Colorado Division of Parks and Outdoor Recreation
- Colorado Division of Water Resources
- Colorado Division of Wildlife
- Colorado Forest Service
- Colorado Geological Survey
- Colorado Mined Land Reclamation Division
- Colorado Natural Areas Program
- Colorado Oil and Gas Conservation Commission
- Colorado State Board of Outfitters and Guides
- Colorado State Historic Preservation Office
- Colorado Tourism Board
- Colorado Water conservation Board
- Utah Division of Wildlife
- Utah Office of Planning & Budget (State Clearinghouse)
- Utah State Historic Preservation Officer
- Wyoming State Planning Coordinator's office
- Wyoming Department of Environmental Quality

Local Agencies and Governments

- Grand County Commissioners
- Lincoln/Uintah Association of Governments
  - Associated Govts. of Northwest CO.
- Moffat County Commissioners
- Moffat County Planning Department
- Northwest Colorado Council of Governments
- Northern Colorado Water Conservancy District
- Uintah County Commissioners
- Rifle Chamber of Commerce
- Rio Blanco County Commissioners
- Rio Blanco County Development Department
- Routt County Commissioners
- Routt County Regional Planning Department
- Uintah Basin Association of Governments

BLM: Intensive Wilderness Inventory - Final Wilderness Study Areas - November 1980. This document contains the same information as the Proposed Wilderness Study Areas report and also includes a thorough analysis and evaluation of public comments, along with any changes to the WSA recommendations made as a result of these comments. This document represents the completion of the wilderness inventory.

Wilderness Study Policy - February 3, 1982. Policies, criteria, and guidelines for conducting wilderness studies on public lands are presented.

Wilderness Management Policy - September 1981. This document describes how BLM will manage lands which are designated by Congress as part of the National Wilderness Preservation System.

All of the wilderness related documents listed above are available for review at any BLM office.

This analysis replaces and supercedes the Draft EIS for the White River Resource Area Wilderness Planning Amendment (BLM, 1983), and the wilderness analysis in the Kremmling Resource Management Plan/EIS (BLM, 1984). This analysis also serves as a plan amendment for land-use plans covering the WSAs as identified in Table 1-1. This Draft EIS will be combined with the Draft Wilderness Technical Supplement (WTS) to the Little Snake Resource Management Plan/EIS. The resulting Final EIS will cover all of the wilderness study areas (WSAs) in BLM's Craig District. The Final Craig District Wilderness EIS will incorporate the public comments, and responses or changes, for the WTS and this Draft EIS. It is anticipated that the Final EIS will be published sometime in 1989.

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CHAPTER 5

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GLOSSARY

ALLOTMENT. An area of land designated and managed for grazing of livestock.

ALLOTMENT MANAGEMENT PLAN (AMP). A document program which applies to livestock operations on the public lands, prepared in consultation, cooperation, and coordination with the permittee(s), lessee(s), or other involved affected interests. Includes supportive measures, if required, designed to attain specific management goals in a grazing allotment.

ANIMAL UNIT MONTH (AUM). The amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month.

ANTICLINE. A fold that is convex upward or had such an attitude at some stage of development. In simple anticlines the beds are oppositely inclined, whereas in more complex types the limbs may dip in the same direction. Some anticlines are of such complicated form that no simple definition can be given. Anticlines may also be defined as folds with older rocks toward the center of curvature, providing the structural history has not been unusually complex.

AQUIFER. A water-bearing bed or stratum of fractured or permeable rock, sand, gravel, or porous stone.

AUM. See animal Unit Month.

CHERRY STEM. Fingerlike intrusion into a wilderness study area (WSA) that is not part of the WSA; an example is a dead end road where WSA boundaries follow edge of road.

CLIMATE. The statistical collective of an area's weather conditions during a relatively long interval of time (usually several decades).

CLIMAX VEGETATION. The final stage of a seral stage progression in which a vegetation community has reached a balance with its ecosystem and reflects the maximum diversity and stability of that natural community.

CULTURAL RESOURCES. Those fragile and nonrenewable remains of human activity, occupation, or endeavor, reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture, and natural features, that were of importance in human events. These resources consist of (1) physical remains, (2) areas where significant human events occurred—even though evidence of the event no longer remains, and (3) the environment immediately surrounding the actual resource. Cultural resources, including both prehistoric and historic remains, represent a part of the continum of events from the earliest evidences of man to the present day. (BLM Manual 8100)

The term "archaeological resource" means any material remains of past human life or activities which are of archaeological interest, as determined under uniform regulations promulgated pursuant to this Act. such regulations containing such determination shall include, but not be limited to: pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pit houses, rock paintings, rock carvings, intaglios, graves, human skeletal materials, or any portion or piece of any of the foregoing items. Nonfossilized and fossilized paleontological specimens, or any portion or piece thereof, shall not be considered archaeological resources, under the regulations under this paragraph, unless found in an archaeological context. No item shall be treated as an archaeological resource under regulation under this paragraph unless such item is at least 100 year of age. (Archaeological Resource Protection Act of 1979 and 43 CFR 7).

DIP. The angle of inclination that a structural surface, e.g., a bedding or fault plane, makes with the horizontal, measured perpendicular to the strike of the structure.

DIRECTIONAL DRILLING. The intentional drilling of a well at an angle with the vertical along a predetermined course, generally to avoid surface obstacles.

DOWN DIP. A direction that is downwards and parallel to the dip of a structure or surface.

ECOSYSTEM. Collectively, all populations in a community, plus the associated environmental factors.

ECOTONE. An ecological community of mixed vegetation formed by the overlapping of adjoining communities.

GLOSSARY

EROSION. The wearing away of the land surface by running water, wind, ice, or other geological agents.

FAULT. A fracture or fracture zone along which there has been displacement of the sides relative to one another parallel to the fracture. The displacement may be a few inches or many miles.

FORMATION. The primary unit of formal mapping or description. Most formations possess certain distinctive, or combinations of distinctive, lithic features.

GEOLOGICAL TIME SCALE. A chart that gives the era, period and epoch divisions of earth history. Comprised of, in part, ERA - Cenozoic 65 million years (my)-present; Meozoic 230-65my; and Palezoic 600-230my. PERIODS - Tertiary 65-1my; Quaternary 1my-present; and Cretaceous 135-65my.

HABITAT. A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HISTORICAL. For this region, pertaining to human activity from 1776 until 50 years ago.

HYDROCARBON. A chemical compound composed principally of carbon and hydrogen but also containing varying amounts of other elements (i.e., sulfur, nitrogen, chlorine).

IGNEOUS. Peaks formed by solidification from a molten or partially molten state. Rocks formed in this manner are often divided for convenience into plutonic and volcanic rocks.

IMPACT. The effect, influence, alteration or imprint of an activity.

IMPAIR. To diminish in value or excellence.

IMPERMEABLE. Applies to strata such as clays, shales, etc., that do not readily permit water to move through them under the pressure differences ordinarily found in groundwater.

IMPRINT. A mark or evidence left by man.

INFILTRATION. The penetration of water into the soil surface through pores of the soil. The rate and amount of infiltration is limited by the size and abundance of pores, organic matter content, and the water absorption capacity of the soil.

LEASE. An instrument through which interests are transferred from one party to another, subject to certain obligations and considerations.

MANAGEMENT FRAMEWORK PLAN (MFP). The Bureau's basic land use plan prior to 1979.

MANAGEMENT FRAMEWORK PLAN AMENDMENT. An amendment to a management framework plan initiated by the need to consider monitoring and evaluation of findings, new data, new or revised policy, a change in circumstances, or an applicant's proposed action which may result in a significant change in a portion of the approved plan.

MULTIPLE RESOURCE VALUES AND USES. The present and potential uses of the various resources administered through multiple use management on the public lands and any public values associated with such uses.

MULTIPLE-USE. The management of public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people.

NATURALNESS. Refers to an area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" (From Section 2(c), Wilderness Act).

PALEONTOLOGY. 1. The science which treats fossil remains, both animal and vegetable. 2. The science that deals with the life of past geological ages. It is based on the study of the fossil remains of organisms. In restricted sense, study of fossil animals.

PERENNIAL PERMANENT STREAM. A stream that ordinarily has running water on a year-round basis.

PERENNIAL WATER. Water sources which contain water year-long.

POPULATION CENTER. A Standard Metropolitan Statistical Area (SMSA) which has a population of 100,000 or greater. An SMSA is a county which contains at least one city of 50,000 inhabitants or more plus as many adjacent counties as are metropolitan in character and are socially integrated with that central city or cities.

POST-FLPMA. After October 21, 1976, the date of approval of the Federal Land Policy and Management Act.

PRE-FLPMA. Before October 21, 1976, the date of the Federal Land Policy and Management Act.

PRIMITIVE AND UNCONFINED RECREATION. Nonmotorized and undeveloped types of outdoor recreational activities.

RIPARIAN. Situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to the plants of all types that grow along streams, around springs, etc.

ROAD. Vehicle routes which have been improved and maintained by mechanical means to insure relatively regular and continuous use.

SCENIC QUALITY. The inherent scenic values of the landscape. It can be best described as the overall impression retained after driving or walking through an area.

SEDIMENT. Soil, rock particles, and organic or other debris carried from one place to another by wind, water, or gravity.

SEDIMENTATION. The act or process of depositing a material, such as water depositing suspended particles in an area such as a stream bottom.

SEDIMENT YIELD. The amount of sediment given up by a watershed over a specific time period, usually a year.

SEISMIC. Pertaining to, characteristic of, or produced by earthquakes or earth vibration, as, seismic disturbances.

SPECIES, CANDIDATE. Any species not yet officially listed but which is undergoing a status review, or is proposed for listing as Endangered according to Federal Register notices published by the Secretary of the Interior or the Secretary of Commerce. Candidate species are divided into 2 categories. Category 1 consists of those taxa for which the USFWS presently has sufficient information on hand to support the biological appropriateness of their being listed as Endangered or Threatened species. Category 2 consists of those taxa for which information now in the possession of the USFWS indicates the probable appropriateness of listing as Endangered or Threatened, but for which sufficient information is not presently available to biologically support a proposed rule.

SPECIES, ENDANGERED. An animal or plant whose prospects of survival and reproduction are in immediate jeopardy, and as is further defined by the Endangered Species Act of 1973, as amended.

SPECIES, SENSITIVE. A designation which is (1) applied to species not yet officially listed but which are undergoing a status review or are proposed for listing according to *Federal Register* notices published by the Secretary of the Interior, or the Secretary of Commerce, or in accordance with comparable state documents published by state officials (2) applied to species whose populations are consistently small and widely dispersed or whose ranges are restricted to a few localities, such that any appreciable reduction in numbers, habitat availability, or habitat condition might lead toward extinction; or (3) applied to species whose numbers are declining so rapidly that official listing may become necessary as a conservation measure.

SPECIES, THREATENED. Any species which is likely to become an endangered species within the foreseeable future throughout all of a significant portion of its range, and as is further defined by the Endangered Species Act of 1973, as amended.

SOLITUDE. The state of being alone or remote from habitations: isolation, or experiencing a lonely, unfrequented or secluded place.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA). See POPULATION CENTER.

STEPPE-TYPE VEGETATION. Vegetation found on arid land that usually have extreme temperature ranges and loess (wind deposited) soils.

STOCKING RATE. (Also known as Carrying Capacity). An estimate of the maximum number of animals (expressed in AUMs) a given area can support each year without inducing damage to the vegetation or related resources.

STRATIGRAPHY. That branch of geology which treats formation, composition, sequence, and correlation of stratified rocks as parts of the earth's crust.

STRIKE. The compass direction which is at right angles to the dip of a rock. It is the line that an inclined plane (or strata) makes with the horizontal.

STRUCTURE. Any visible signs of displacement or deformation of bed rock such as faulting or folding.

SUBSTANTIALLY UNNOTICEABLE. Refers to something that either is so insignificant as to be only a very minor feature of the overall area or is not distinctly recognizable by the average visitor as being manmade or man-caused because of age, weathering, or biological change. An example of the first should be a few minor dams or abandoned mine buildings that are widely scattered over a large area, so that they are an inconspicuous part of the scene. Serious intrusions of this kind, or many of them, may preclude inclusions intrusions of this kind, or many of them, may preclude inclusions of the land in a wilderness study area. An example of the second would be an old juniper control project that has grown up to a natural appearance, the old fallen trees being largely decomposed.

SUITABILITY. As used in the Wilderness Act and in the Federal Land Policy and Management Act, refers to a recommendation by the Secretary of the Interior or the Secretary of Agriculture that certain Federal lands satisfy the definition of wilderness in the Wilderness Act and have been found appropriate for designation as wilderness on the basis of an analysis of the existing and potential uses of the land.

SYNCLINE. A convex upward fold in rocks in which the strata dip inward toward the axis.

THREATENED SPECIES. See species, threatened.

THRUST. An overriding movement of one crustal unit over another, where older strata are superimposed over younger, by a low angle fault plan (<40 degrees)

TOPOGRAPHY. The physical features of a district or region, such as are represented on maps, taken collectively; especially, the relief and contour of the land.

TRAP. Applies to the accumulation of petroleum in a reservoir rock under such conditions that its migration and escape is prevented.

TUFF. A rock formed of volcanic fragments, generally smaller than 4 mm in diameter, and can be of volcanic or sedimentary-volcanic origin.

UNCONFORMITY. A surface of erosion or nondeposition, usually the former, that separates younger strata from older rocks.

VEGETATIVE SUCCESSIONAL STAGE. A plant community which is part of a progressive series leading to a community which perpetuates itself indefinitely under the environmental conditions.

WATER QUALITY. The chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

WATER RIGHT. In Colorado, a separate property right which entitles the owner to use a specific amount of water from a specific point of diversion for a specific purpose.

WATER RIGHT, APPROPRIATION. The establishment of a water right by diversion, due diligence, and beneficial use under Colorado State Law.

WATER RIGHT, RESERVED. A water right asserted by the BLM as being reserved in the name of the United States and limited to the uses and quantities necessary to accomplish the purposes for which the land has been reserved.

WATERSHED. All lands which are enclosed by a continuous hydrologic drainage divide and lie upslope from a specified point on stream.

WAY. A two-wheel track created only by the passage of vehicles. A "way" is not a road.

WILDERNESS AREA. An area formally designated by Act of Congress as part of the National Wilderness Preservation System.

WILDERNESS CHARACTERISTICS. Identified by Congress in the 1964 Wilderness Act: namely size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features. It is required that the area possess at least 5,000 acres or more of contiguous public land or be of a size to make practical its preservation and use in an unimpaired condition; be substantially natural or generally appear to have been affected primarily by the forces of nature, with the imprint of man being substantially unnoticeable; and have either outstanding opportunities for solitude or a primitive and unconfined type of recreation. Congress stated that a wilderness area may also have supplemental values, which include ecological, geological, or other features of scientific, educational, scenic, or historical value.

WILDERNESS INVENTORY. An evaluation of public lands in the form of a written description and map showing those lands that meet the wilderness criteria as established under Section 603(a) of FLPMA and Section 2(c) of the Wilderness Act.

WILDERNESS MANAGEMENT. The management of human use and influence on lands which have been designated by Act of Congress as wilderness areas.

WILDERNESS MANAGEMENT POLICY. A policy document prescribing the general objectives, policies and specific activity guidance applicable to all designated BLM wilderness areas. Specific management objectives, requirements and decisions implementing administrative practices and visitor activities in individual wilderness areas are developed and described in the wilderness management plan for each unit.

WILDERNESS REPORTING. The process of preparing the reports containing wilderness recommendations on wilderness study areas and transmitting those reports to the Secretary of the Interior, the President and Congress.

WILDERNESS REVIEW. The term used to cover the entire wilderness inventory, study and reporting phases of the wilderness program of the Bureau of Land Management.

WILDERNESS STUDY AREA (WSA). A roadless area or island that has been inventoried and found to have wilderness characteristics as described in Section 603 of FLPMA and Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891).

WILDERNESS STUDY. The process outlined in these guidelines which specifies how each wilderness study area must be studied through the BLM resource management planning system, analyzing all resources, values, and uses within the WSA to determine whether the area will be recommended as suitable or nonsuitable for wilderness designation.

WILDERNESS SUITABILITY RECOMMENDATIONS. A recommendation by the Bureau of Land Management, the Secretary of the Interior or the President, with respect to an area's suitability or nonsuitability for preservation as wilderness.

WILDERNESS VALUES. The wilderness characteristics and multiple resource benefits of an area.

APPENDIX A

EXISTING AND POTENTIAL WILDERNESS AREAS WITH THE SAME POTENTIAL NATURAL VEGETATION CLASSIFICATIONS WITHIN 200 MILES OF THE WILDERNESS STUDY AREAS

The regional boundary of 200 air miles approximates a day's drive (5 hours) and encompasses existing or potential wilderness areas which contain similar ecoregion and vegetation types. Tables A-1 through A-4 list designated, endorsed, and other study areas within 200 air miles which are within the same ecoregion and have the same potential natural vegetation types.

TABLE A-1

AREAS WITHIN 200 AIR MILES WITH ECOSYSTEM M3110-21 (ROCKY MOUNTAIN FOREST, JUNIPER-PINYON WOODLAND)

Unit Number	**Unit Name**	**Acres ***	**State**	**Agency**
STATUTORY WILDERNESS				
FS-045	Desert Peak	12,355	Utah	USFS
ADMINISTRATIVELY ENDORSED				
NP-913	Dinosaur National Monument	102,835	Colorado	NPS
WILDERNESS STUDY AREAS				
CO-010-001	Bull Canyon	5,000	Colorado	BLM
CO-010-002	Willow Creek	6,000	Colorado	BLM
CO-010-003	Skull Creek	8,000	Colorado	BLM
CO-010-007A	Black Mountain	9,932	Colorado	BLM
CO-010-007C	Windy Gulch	12,274	Colorado	BLM
CO-010-208	West Cold Spring	12,420	Colorado	BLM
CO-010-214	Diamond Breaks	22,000	Colorado	BLM
CO-010-230	Cross Mountain	12,000	Colorado	BLM
CO-010-224	Ant Hills	3,000	Colorado	BLM
CO-010-224a	Chew Winter Camp	1,320	Colorado	BLM
CO-010-226	Peterson Draw	4,160	Colorado	BLM
CO-010-229d	Vale of Tears	7,420	Colorado	BLM
CO-030-286	McKenna Peak	3,880	Colorado	BLM
CO-070-430	Bull Gulch	10,500	Colorado	BLM

* Acreage shows Potential Natural Vegetation type only.

TABLE A-2

AREAS WITHIN 200 AIR MILES WITH ECOSYSTEM M3110-31 (ROCKY MOUNTAIN FOREST, MOUNTAIN MAHOGANY-OAK SCRUB)

Unit Number	Unit Name	Acres *	State	Agency
STATUTORY WILDERNESS				
FS-105	Lone Peak	23,660	Utah	USFS
FS-128	Mount Nebo	5,770	Utah	USFS
FS-129	Mount Olympus	7,413	Utah	USFS
FS-134	Mount Timipanogos	5,807	Utah	USFS
FS-204	Twin Peaks	1,989	Utah	USFS
FS-209	Wellsville Mountain	23,858	Utah	USFS
WILDERNESS STUDY AREAS				
CO-010-046	Oil Spring Mountain	17,740	Colorado	BLM
CO-010-214/ UT-080-113	Diamond Breaks	8,885	Colorado	BLM
CO-030-286	McKenna Peak	633	Colorado	BLM
UT-060-100B	Flume Canyon	4,845	Utah	BLM
FS-085	Huston Park	1,000	Wyoming	USFS

*Acreage shows Potential Natural Vegetation type only.

TABLE A-3

AREAS WITHIN 200 AIR MILES WITH ECOSYSTEM M3110-49 (ROCKY MOUNTAIN FOREST, SAGEBRUSH STEPPE)

Unit Number	Unit Name	Acres *	State	Agency
STATUTORY WILDERNESS				
FS076	Gros Ventre	40,018	Wyoming	USFS
FS-154	Platte River	766	Wyoming	USFS
ADMINISTRATIVELY ENDORSED				
NP-913	Dinosaur National Monument	102,836	Colorado NPS	
NP-913	Dinosaur National Monument	13,179	Utah	NPS
WILDERNESS STUDY AREAS				
CO-010-001	Bull Canyon	6,777	Colorado	BLM
CO-010-002	Willow Creek	7,368	Colorado	BLM
CO-010-003	Skull Creek	5,740	Colorado	BLM
CO-010-208/	West Cold Spring	5,262	Colorado/	BLM
UT-080-103			Utah	BLM
CO-010-214/	Diamond Breaks	4,495	Colorado	BLM
UT-080-113				
CO-010-230	Cross Mountain	2,081	Colorado	BLM
CO-010-224	Ant Hills	1,354	Colorado	BLM
CO-010-226	Peterson Draw	1,000	Colorado	BLM
CO-070-430	Bull Gulch	3,000	Colorado	BLM
UT-080-414	Daniel's Canyon	2,446	Utah	BLM

* Acres shows Potential Natural Vegetation type only.

TABLE A-4

AREAS WITHIN 200 AIR MILES WITH ECOSYSTEM M3110-14 (ROCKY MOUNTAIN FOREST PROVINCE, WESTERN SPRUCE-FIR FOREST)

Unit Number	Unit Name	Acres*	State	Agency
STATUTORY WILDERNESS				
FS-037	Collegiate Peaks	43,168	Colorado	USFS
FS-040	Commanche Peak	37,065	Colorado	USFS
FS-054	Eagles Nest	95,356	Colorado	USFS
FS-059	Flat Tops	235,128	Colorado	USFS
FS-082	Holy Cross	74,130	Colorado	USFS
FS-084	Hunter Fryingpan	24,562	Colorado	USFS
FS-087	Indian Peaks	20,979	Colorado	USFS
FS-106	Lost Creek	105,129	Colorado	USFS
FS-110	Maroon Bells	98,840	Colorado	USFS
FS-123	Mount Evans	37362	Colorado	USFS
FS-137	Mount Zirkel	134818	Colorado	USFS
FS-140	Neota	9,909	Colorado	USFS
FS-157	Raggeds	29,887	Colorado	USFS
FS-159	Rawah	64,110	Colorado	USFS
FS-213	West Elk	176,096	Colorado	USFS
FS-020	Bridger	235,387	Wyoming	USFS
FS-036	Cloud Peak	74,130	Wyoming	USFS
FS-056	Encampment River	10,403	Wyoming	USFS
FS-058	Fitzpatrick	61,058	Wyoming	USFS
FS-076	Gros Ventre	247,100	Wyoming	USFS
FS-085	Huston Park	31,308	Wyoming	USFS
FS-090	Jedediah Smith	74,130	Wyoming	USFS
FS-144	North Absaroka	229,000	Wyoming	USFS
FS-155	Popo Agie	49,420	Wyoming	USFS
FS-181	Savage Row	14,011	Wyoming	USFS
FS-198	Teton	237,006	Wyoming	USFS
FS-207	Washakie	370,650	Wyoming	USFS
ADMINISTRATIVELY ENDORSED				
?				
WILDERNESS STUDY AREAS				
CO-010-155	Troublesome	8,250	Colorado	BLM
CO-050-016	Beaver Creek	6,015	Colorado	BLM
CO-070-430	Bull Gulch	1,500	Colorado	BLM
WY-030-301	Emcampment R. Cyn.	4,547	Wyoming	BLM
WY-030-303	Prospect Mountain	1,145	Wyoming	BLM

* Acreage shows Potential Natural Vegetation type only.

APPENDIX B

EXISTING AND POTENTIAL WILDERNESS WITHIN A DAY'S DRIVE OF THE STANDARD METROPOLITAN STATISTICAL AREAS

The 200-mile regional boundary also approximates the day's drive (5 hours). Tables B-1 through B-6 list the areas within 200 air miles of the Standard Metropolitan Statistical Areas in Colorado (Denver-Boulder and Fort Collins) and Utah (Provo-Orem and Salt Lake City-Ogden). The areas listed are within a day's drive of at least one of the population centers above.

TABLE B-1

STATUTORY WILDERNESS WITHIN 200 MILES OF COLORADO STANDARD METROPOLITAN STATISTICAL AREAS

Unit Number	Unit Name	Acres	State	Agency
FS-054	Eagles Nest	133,325	Colorado	USFS
FS-059	Flat Tops	235,035	Colorado	USFS
FS-100	La Garita	103,986	Colorado	USFS
FS-110	Maroon Bells-Snowmass	180,498	Colorado	USFS
FS-137	Mount Zirkel	139,818	Colorado	USFS
FS-159	Rawah	73,020	Colorado	USFS
FS-210	Weminuche	459,604	Colorado	USFS
FS-213	West Elk	176,092	Colorado	USFS
FS-084	Hunter-Frying Pan	74,250	Colorado	USFS
FS-087	Indian Peaks	70,374	Colorado	USFS
FS-141	Never Summer	13,702	Colorado	USFS
FS-025	Cache la Poudre	9,238	Colorado	USFS
FS-040	Comanche Peaks	66,781	Colorado	USFS
FS-140	Neota	9,924	Colorado	USFS
FS-123	Mt. Evans	74,401	Colorado	USFS
FS-082	Holy Cross	122,037	Colorado	USFS
FS-037	Collegiate Peaks	166,654	Colorado	USFS
FS-157	Raggeds	59,519	Colorado	USFS
FS-012	Big Blue	98,320	Colorado	USFS
FS-132	Mt. Sneffels	16,505	Colorado	USFS
FS-106	Lost Creek	105,090	Colorado	USFS
FS-126	Mt. Massive	27,980	Colorado	USFS
FS-189	South San Juan	127,690	Colorado	USFS
FS-181	Savage Run	14,940	Wyoming	USFS
FS-154	Platte River	23,000	Wyoming/ Colorado	USFS
FS-056	Encampment River	10,400	Wyoming	USFS
FS-085	Huston Park	31,300	Wyoming	USFS
NP-002	Blk, Cyn, of the Gunnison N.M.	11,180	Colorado	NPS
NP-008	Great Sand Dunes N.M.	33,450	Colorado	NPS
FWS	Leadville	2,560	Colorado	USFWS
Total	30 Areas	2,670,673		

TABLE B-2

ADMINISTRATIVELY ENDORSED WILDERNESS STUDY AREAS WITHIN 200 MILES OF COLORADO STANDARD METROPOLITAN STATISTICAL AREAS

Unit Number	Unit Name	Acres	State	Agency
NP-925	Rocky Mountain National Park	263,792	Colorado	NPS
NP-913	Dinosaur National Monument	205,671	Colorado	NPS
CO-030-089	Powderhorn	50,140	Colorado	BLM
B2100	Davis Peak	8,100	Colorado	USFS
A2104	Service Creek	39,860	Colorado	USFS
A2177	Service Creek	8,000	Colorado	USFS
02218	Cannibal Plateau	31,990	Colorado	USFS
A2250	Buffalo Peaks	56,900	Colorado	USFS
A2266	Sangre De Cristo	221,000	Colorado	USFS
A2270	Greenhorn Mountain	22,300	Colorado	USFS
A2361	Vasquez Peak/St. Louis Peak	12,800	Colorado	USFS
Total	16 Areas	920,553		

TABLE B-3

WILDERNESS STUDY AREAS WITHIN 200 MILES OF COLORADO STANDARD METROPOLITAN STATISTICAL AREAS

Unit Number	Unit Name	Acres	State	Agency
CO-010-007A	Black Mountain	9,932	Colorado	BLM
CO-010-007C	Windy Gulch	12,274	Colorado	BLM
CO-010-104	Platte Riiver Contiguous	30	Colorado	BLM
CO-010-155	Troublesome	8,250	Colorado	BLM
CO-030-208	Red Cloud Peak	38,400	Colorado	BLM
CO-030-217	American Flats	4,710	Colorado	BLM
CO-030-229B	Needle Creek	4,540	Colorado	BLM
CO-030-230B	Whitehead Gulch	5,560	Colorado	BLM
CO-030-238B	Weminuche Contiguous	1,980	Colorado	BLM
CO-030-241	Handies Peak	18,260	Colorado	BLM
CO-030-353	Camel Back	10,900	Colorado	BLM
CO-030-370B	Adobe Badlands	10,560	Colorado	BLM
CO-030-388	Gunnison Gorge	20,240	Colorado	BLM
CO-050-002	Browns Canyon	6,614	Colorado	BLM
CO-050-013	McIntyre Hills	16,060	Colorado	BLM
CO-050-014	Lower Grape Creek	10,630	Colorado	BLM
CO-050-016	Beaver Creek	26,150	Colorado	BLM
CO-050-017	Upper Grape Creek	9,840	Colorado	BLM
CO-050-141	San Luis Hills	10,240	Colorado	BLM
CO-070-066	Little Bookcliffs Wildhorse Area	26,525	Colorado	BLM
CO-070-150	Dominguez Canyons	75,800	Colorado	BLM
CO-070-392	Eagle Mountain	330	Colorado	BLM
CO-070-425	Hack Lake	3,360	Colorado	BLM
CO-070-430	Bull Gulch	14,364	Colorado	BLM
CO-070-433	Castle Peak	11,940	Colorado	BLM
204	Fossil Ridge	47,400	Colorado	USFS
2-114	Williams Fork	74,770	Colorado	USFS
02181	Oh-Be-Joyful	5,500	Colorado	USFS
02271	Spanish Peaks	19,600	Colorado	USFS
B2284	South San Juan (V-Rock)	32,800	Colorado	USFS
WY-030-120	Sweetwater Rocks	6,316	Wyoming	BLM
WY-030-122	Sweetwater Rocks	12,749	Wyoming	BLM
WY-030-123A	Sweetwater Rocks	7,041	Wyoming	BLM
WY-030-123B	Sweetwater Rocks	6,429	Wyoming	BLM
WY-030-304	Bennett Mountains	5,722	Wyoming	BLM
WY-030-401/ WY-040-408	Adobe Town	81,871	Wyoming	BLM
WY-030-407	Ferris Mountains	20,495	Wyoming	BLM
WY-040-318	Red Lake	9,515	Wyoming	BLM
Total	38 areas	687,697		

TABLE B-4

STATUTORY WILDERNESS WITHIN 200 MILES OF UTAH STANDARD METROPOLITAN STATISTICAL AREAS

Unit Number	Unit Name	Acres	State	Agency
FS-	Jarbidge	64,677	Nevada	USFS
FS-020	Bridger	428,169	Wyoming	USFS
FS-058	Fitzpatrick	198,838	Wyoming	USFS
FS-155	Popo Agie	101,991	Wyoming	USFS
FS-076	Gros Ventre	287,000	Wyoming	USFS
FS-090	Jedediah Smith	116,535	Wyoming	USFS
NP-005	Craters of the Moon N.M.	43,243	Idaho	NPS
FS-105	Lone Peak	30,088	Utah	USFS
04253	Ashdown Gorge	7,000	Utah	USFS
FS-129	Mt. Olympus	16,000	Utah	USFS
FS-209	Wellsville Mountain	23,850	Utah	USFS
FS-127	Mt. Naomi	44,350	Utah	USFS
FS-018	Box-Death Hollow	26,000	Utah	USFS
FS-081	High Uintas	460,000	Utah	USFS
FS-045	Deseret Peak	25,500	Utah	USFS
FS-128	Mt. Nebo	28,000	Utah	USFS
FS-134	Mt. Timpanogos	10,750	Utah	USFS
FS-204	Twin Peaks	13,100	Utah	USFS
FS-153	Pine Valley Mountain	50,000	Utah	USFS
Total	19 Areas	1,975,091		

TABLE B-5

ADMINISTRATIVELY ENDORSED WILDERNESS STUDY AREAS WITHIN 200 MILES OF UTAH STANDARD METROPOLITAN STATISTICAL AREAS

Unit Number	Unit Name	Acres	State	Agency
ID-33-1	Great Rift	355,850	Idaho	BLM
I4179	Worm Creek	15,770	Idaho	USFS
NP-909	Colorado National Monument	13,842	Colorado	NPS
NP-913	Dinosaur National Monument	205,671	Colorado	NPS
NP-900	Arches National Monument	61,547	Utah	NPS
NP	Zion National Park	120,620	Utah	NPS
NP-903	Bryce Canyon National Park	20,810	Utah	NPS
NP-905	Canyonlands National Park	260,150	Utah	NPS
NP-906	Capitol Reef National Monument	179,815	Utah	NPS
NP-908	Cedar Breaks National Monumemt	4,830	Utah	NPS
NP-913	Dinosaur National Monument	39,684	Utah	NPS
NP 916	Grand Teton National Park	91,105	Wyoming	NPS
Total	12 Areas	1,369,694		

TABLE B-6

WILDERNESS STUDY AREAS WITHIN 200 MILES OF UTAH STANDARD METROPOLITAN STATISTICAL AREAS

Unit Number	Unit Name	Acres	State	Agency
CO-010-001/ UT-080-419	Bull Canyon	12,297	Colorado/ Utah	BLM
CO-010-002	Willow Creek	13,368	Colorado	BLM
CO-010-003	Skull Creek	13,740	Colorado	BLM
CO-010-007A	Black Mountain	9,932	Colorado	BLM
CO-010-007C	Windy Gulch	12,274	Colorado	BLM
CO-010-046	Oil Spring Mountain	17,740	Colorado	BLM
CO-010-208/ UT-080-103	West Cold Spring	17,682	Colorado/ Utah	BLM
CO-010-214/ UT-080-113	Diamond Breaks	35,380	Colorado/ Utah	BLM
CO-010-230	Cross Mountain	14,081	Colorado	BLM
CO-010-224	Ant Hills	4,354	Colorado	BLM
CO-010-224a	Chew Winter Camp	1,320	Colorado	BLM
CO-010-226	Peterson Draw	5,160	Colorado	BLM
CO-010-229d	Vale of Tears	7,420	Colorado	BLM
CO-070-009	Demaree Canyon	21,050	Colorado	BLM
CO-070-066	Little Bookcliffs Wildhorse Area	26,525	Colorado	BLM
CO-070-113/ CO-070-113A	Black Ridge Canyons	18,150	Colorado	BLM
UT-060-116/ UT-060-117	Black Ridge Canyons West	54,290	Colorado/ Utah	BLM
CO-070-132	The Palisade	26,050	Colorado	BLM
CO-070-176	Sewem Up Mesa	19,140	Colorado	BLM
NV-010-027	Bluebell	55,665	Nevada	BLM
NV-010-033	Goshute Peak	69,770	Nevada	BLM
NV-010-035	South Pequop	41,090	Nevada	BLM
NV-010-151	Rough Hills	6,685	Nevada	BLM
NV-010-184	Bad Lands	9,426	Nevada	BLM
NV-040-015	Goshute Canyon	30,585	Nevada	BLM
NV-040-169	Mt. Grafton	73,216	Nevada	BLM
NV-040-177	Fortification Range	41,615	Nevada	BLM
NV-040-197	Table Mountain	35,958	Nevada	BLM
NV-040-202/ NV-040-216	White Rock Range	23,625	Nevada	BLM
UT-020-089	North Stansbury Mountains	10,480	Utah	BLM
UT-020-094	Cedar Mountains	50,500	Utah	BLM
UT-040-061	Steep Creek	21,896	Utah	BLM
UT-040-076	Carcass Canyon	46,711	Utah	BLM
UT-040-077	Mud Springs Canyon	38,075	Utah	BLM
UT-040-082	Scorpion	35,884	Utah	BLM
UT-040-268	The Blues	19,030	Utah	BLM

TABLE B-6 (continued)

Unit Number	Unit Name	Acres	State	Agency
UT-ISA-1	Phipps-Death Hollow	42,731	Utah	BLM
UT-ISA-2	North Escalante/The Gulch	119,300	Utah	BLM
UT-050-020	Deep Creek Mountains	68,910	Utah	BLM
UT-050-035	Conger Mountain	20,400	Utah	BLM
UT-050-061	Swasey Mountains	49,500	Utah	BLM
UT-050-070	King Top	84,770	Utah	BLM
UT-050-073/ UT-040-205	Wah Wah Mountains	42,140	Utah	BLM
UT-050-077	Howell Peak	24,800	Utah	BLM
UT-050-078	Notch Peak	51,130	Utah	BLM
UT-050-127	Fish Springs	52,500	Utah	BLM
UT-050-186	Rockwell	9,150	Utah	BLM
UT-050-236A	Dirty Devil	61,000	Utah	BLM
UT-050-236B	French Spring-Happy Canyon	25,000	Utah	BLM
UT-050-237	Horseshoe Canyon (South)	38,800	Utah	BLM
UT-050-238	Mt. Ellen-Blue Hills	81,726	Utah	BLM
UT-050-241	Fiddler Butte	73,100	Utah	BLM
UT-050-242	Bull Mountain	11,800	Utah	BLM
UT-050-247	Little Rockies	38,700	Utah	BLM
UT-050-248	Mt. Pennell	74,300	Utah	BLM
UT-050-249	Mt. Hillers	20,000	Utah	BLM
UT-060-007	Muddy Creek	31,400	Utah	BLM
UT-060-023	Sids Mountain	80,530	Utah	BLM
UT-060-025	Devils Canyon	9,610	Utah	BLM
UT-060-028A	Crack Canyon	25,335	Utah	BLM
UT-060-029A	San Rafael Reef	59,170	Utah	BLM
UT-060-045/ UT-050-237A	Horseshoe Canyon (North)	20,500	Utah	BLM
UT-060-054	Mexican Mountain	59,600	Utah	BLM
UT-060-067	Turtle Canyon	33,690	Utah	BLM
UT-060-068A	Desolation Canyon	289,650	Utah	BLM
UT-060-100B	Flume Canyon	50,800	Utah	BLM
UT-060-100C	Spruce Canyon	20,350	Utah	BLM
UT-060-118	Westwater Canyon	31,160	Utah	BLM
UT-060-140A	Behind the Rocks	12,635	Utah	BLM
UT-060-164	Indian Creek	6,870	Utah	BLM
UT-060-167	Bridger Jack Mesa	5,290	Utah	BLM
UT-060-169	Bulter Wash	24,190	Utah	BLM
UT-ISA-6	Dark Canyon Complex	68,030	Utah	BLM
WY-030-101	Sweetwater Canyon	9,056	Wyoming	BLM
WY-030-401/ WY-040-408	Adobe Town	81,871	Wyoming	BLM
WY-040-101	Scab Creek	7,636	Wyoming	BLM
YW-040-110	Lake Mountain	13,865	Wyoming	BLM
WY-040-221	Raymond Mountains	32,936	Wyoming	BLM

TABLE B-6 (continued)

Unit Number	Unit Name	Acres	State	Agency
WY-040-306	Buffalo Hump	10,300	Wyoming	BLM
WY-040-307	Sand Dunes	26,509	Wyoming	BLM
WY-040-311	Alkali Draw	16,990	Wyoming	BLM
WY-040-313	S. Pinnacles	10,800	Wyoming	BLM
WY-040-316/ WY-040-317	Alkali Basin E. Sand Dunes	12,800	Wyoming	BLM
WY-040-318	Red Lake	9,515	Wyoming	BLM
WY-040-323	Honeycomb Buttes	40,750	Wyoming	BLM
WY-040-324	Oregon Buttes	5,700	Wyoming	BLM
WY-040-401/ WY-040-402	Devils Playground/ Twin Buttes	22,561	Wyoming	BLM
WY-040-406	Red Creek Badlands	8,020	Wyoming	BLM
04758	Mount Naomi	28,800	Idaho	USFS
04352	Mt. Moriah	97,205	Nevada	USFS
04359	Wheeler Peak	61,919	Nevada	USFS
04367	Ruby Mountains	55,180	Nevada	USFS
04391	Highland Ridge	76,017	Nevada	USFS
A4372	Jarbidge Addition	31,070	Nevada	USFS
ID-17-11	Jarbridge River	75,340	Idaho	BLM
ID-28-1	Petticoat Peak	11,298	Idago	BLM
ID-31-14	Appendicitus Hill	21,900	Idaho	BLM
ID-31-17	White Knob Mountains	9,950	Idaho	BLM
ID-32-9	Black Canyon	5,400	Idaho	BLM
ID-33-4	Cedar Butte	35,700	Idaho	BLM
ID-33-15	Hell's Half Acre	66,200	Idaho	BLM
ID-34-2	Table Rock Islands	380	Idaho	BLM
ID-34-3	Pine Creek Islands	155	Idaho	BLM
ID-34-4	Conant Valley Islands	235	Idaho	BLM
ID-35-3	Sand Mountain	21,100	Idaho	BLM
ID-53-5	Friedman Creek	9,773	Idaho	BLM
ID-54-5	Little City of Rocks	5,875	Idaho	BLM
ID-54-6	Black Canyon	10,371	Idaho	BLM
ID-54-8A	Gooding City of Rocks	14,743	Idaho	BLM
ID-54-8B	Gooding City of Rocks	6,287	Idaho	BLM
ID-56-2	Lava	23,680	Idaho	BLM
ID-57-2	Shale Butte	15,968	Idaho	BLM
ID-57-8	Sand Butte	20,792	Idaho	BLM
ID-57-10	Raven's Eye	67,110	Idaho	BLM
ID-57-11	Little Deer	33,531	Idaho	BLM
ID-57-14	Bear Den Butte	9,700	Idaho	BLM
ID-59-7	Shoshone	6,914	Idaho	BLM
W4613	Palisades (West)	111,250	Idaho	USFS
W4613/ E4613	Palisades	135,840	Wyoming	USFS
NP-916	Grand Teton National Park	45,552	Wyoming	NPS

APPEN[redacted]

OIL AND GAS WELLS IN THE OIL SPRING MOUNTAIN WSA

Well	Location	Lowest Formation	Completion Date	Status
Continental Oil #6 Govt	T3S-R102W Sec. 30, NWSW	Mancos "B:	5-27-69	P&A
Coseka Resources 1-17 Coors-USA	T3S-R103W Sec. 17, NWNE	Entrada	—	P&A
National Oil 1-10 Federal	T35-R103W Sec. 10, SWSE	Frontier	12-8-82	P&A
Northwest Exploration 4X USA-Texas Creek	T3S-R103W Sec. 10, SWSW	Mancos "B"	11-11-79	P&A
Adolph Coors 1-19 USA C7867	T3S-R103W Sec. 19, NENE	Mancos "B"	1-15-79	PCW
Continental Oil & English Oil #3 Govt	T3S-R103W Sec. 23, NWNE	Mancos	12-7-53	P&A
Fuel Resources Dev. 24-1	T3S R103W Sec. 24, SWSE	Emery (Mancos "B")	6-2-76	P&A
Continental Oil 4 Missouri Creek Unit	T3S-R103W Sec. 25, NENE	Mancos "A"	12-6-65	P&A
Northwest Prod. Panhandle Oil 5 Urado Unit	T3S-R103W Sec. 25, SENW	Weber	11-16-56	P&A
Continental Oil 1 Missouri Creek 27	T3S-R103W Sec. 27, SWNW	Entrada (Dakota Prod.)	1-31-78	PGW
Fuel Resources Dev. L-34-103-S Fed	T3S-R103W Sec. 34, NWSW	Morrison	6-20-84	0
Provident Resources 3-18-4-102	T4S-R102W Sec. 18, SESW	Mancos "B"	8-9-77	PGW
Provident Resources 9-19-4-102	T4S-R102W Sec. 19, SENE	Mancos "B"	6-24-77	PGW
Cities Ser. Oil #1 USA	T4S-R102W Sec. 7, SWSE	Entrada	11-20-59	P&A

P&A - Plugged and Abandoned
PGW - Producing Gas Well
0 - Abandoned Location

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